EVERYBODY'S FLOWER GARDEN

H. H. THOMAS

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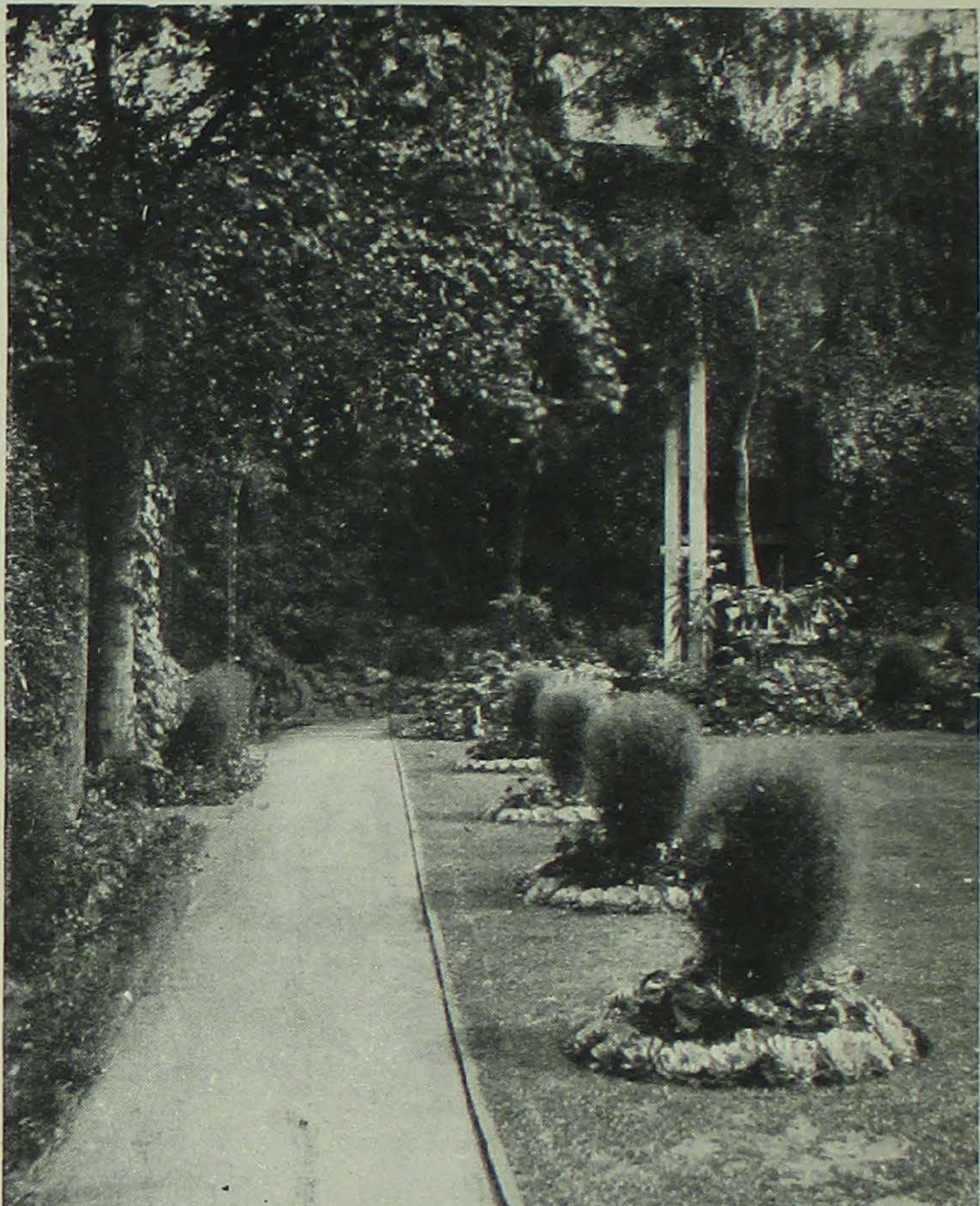

Lawn Beds of Summer Flowers

Everybody's Flower Garden

BY

H. H. THOMAS

FREELY ILLUSTRATED BY PHOTOGRAPHS AND SKETCHES

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PREFACE

The flower world has been greatly enriched during recent years by treasures from far lands, and by the florist working in home gardens. A wide choice is now open to the amateur gardener; he may select from hundreds of species and varieties for the embellishment of his pleasaunce. Not only are new flowers, or modern varieties of old ones, available, but delightful ways of arranging them have come into practice, with the result that a twentieth-century flower garden may be made an altogether delightful spot by those who will exercise the care that is required to ensure a successful consummation.

Flowers of new shades have been obtained, and their arrangement according to colour provides many charming effects. Those who do not care to go to the trouble of developing an elaborate colour scheme in the flower border may obtain perhaps equally satisfactory results by taking care to avoid colour discords.

The little formal garden has again become a pronounced feature of the English garden, though it is far more delightful now than it was when previously in vogue. Free-blossoming plants, often with fragrant leaves or flowers, are grouped in beds of simple design, edged with stone; a sundial marks the centre, and access is given by paved paths in which miniature plants grow and blossom.

How, too, has the rock garden developed. Hitherto unexplored regions of the globe have yielded up their undiscovered beauties to the indefatigable traveller, and new methods of cultivation have become widely known. Altogether the amateur has sufficient choice of material and sufficient information at his disposal to enable him to transform his plot into a garden overflowing with flowers, and redolent with the scent of blossoms of many lands.

The object of " Everybody's Flower Garden " is to attempt to epitomise the material and the methods that are at the disposal of the amateur of to-day ; to point out the ways of least resistance, and so to direct his going that he may have a beautiful garden with the minimum of cost and labour.

Many of the sketches have been re-drawn from material supplied by Mr. H. C. Rollinson and Miss E. J. Dunham, who have also written the explanatory matter accompanying them. Mr. George Abbey has written some of the notes dealing with Insect Pests.

H. H. T.

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EVERYBODY'S FLOWER GARDEN

CHAPTER I

On Making a Flower Garden

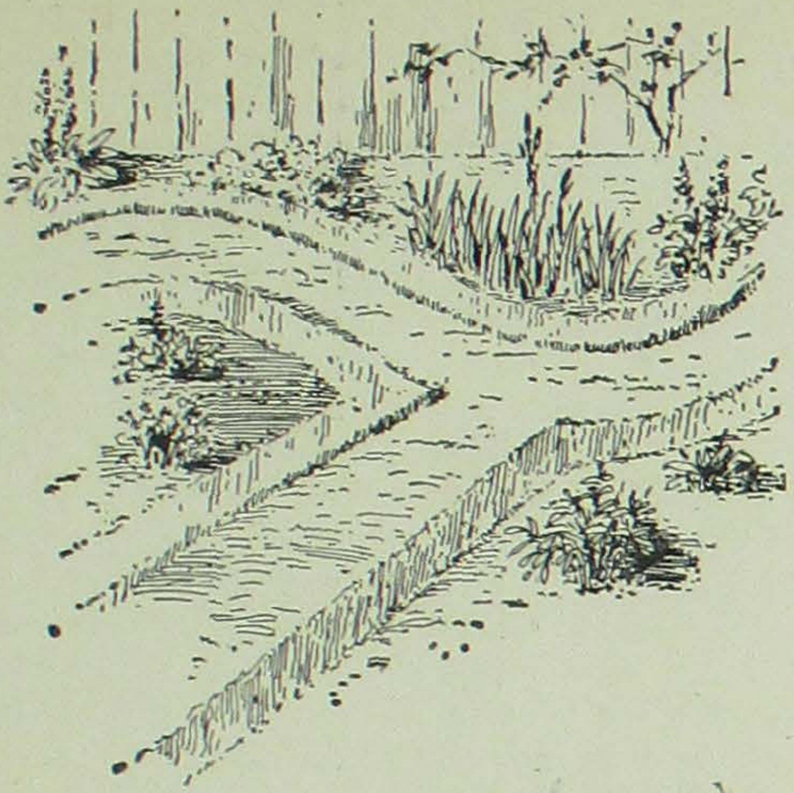
THERE are few delights comparable with that of making a garden—one's own garden. Fancy is free to indulge as it will; providing the result satisfies its creator, it is of little moment if it incurs the criticism of others. He who has made a garden, and watched its rise from infancy to maturity, is alone able to appreciate it fully; he remembers how it has grown, it may be from a grass plot or rough meadow, and always, in appraising its charm, draws, perhaps without conscious thought of doing so, a comparison which the casual visitor is incapable of making. If the amateur has proceeded on sound lines there is every likelihood that in pleasing himself he will compel the admiration of others. It does not follow that because a garden satisfies its owner it is necessarily a matter for congratulation. It may achieve the chief object of its creation, that of providing delight and recreation for him who made it, but it may also have the effect of perverting his perception and of blinding him to the finer points of garden making.

There are no finite rules; men may make a hundred beautiful gardens, each totally different from the other; further, are any two gardens exactly alike? Yet there are many well defined errors commonly perpetrated, and their avoidance is not only good in itself, but has the effect of inducing the worker to seek for the means of finer and truer gardening.

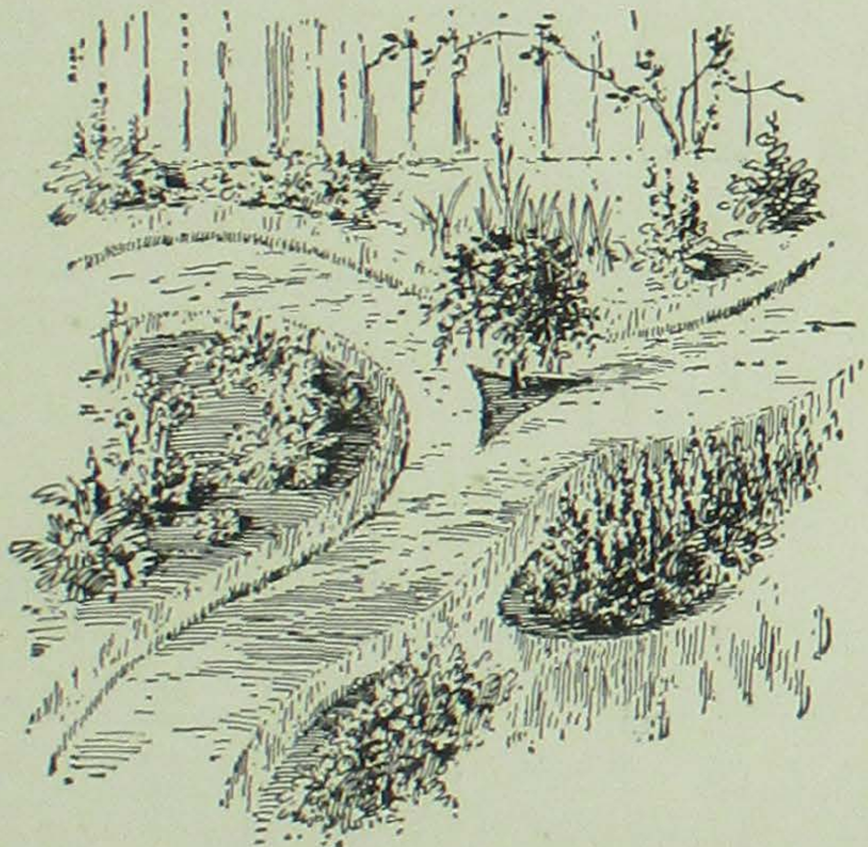
Most small gardens fail to make an appeal because they are flat. To transform a flat garden into an undulating one is hard work, and that may be the chief reason why one sees so few gardens of the latter character. Yet how intensified the interest becomes at once; here is a mounded shrubbery; there a shady dell for ferns, Bluebells, Woodruff and Solomon's Seal; elsewhere spreads a raised rockery overlooking a sunken lawn or garden of roses. Little hills and hollows, gracefully winding walks, leafy and flowering screens which raise expectation as to what lies beyond; rounded corners to a square plot—these, together with the skilful placing of the various plants and the creation of simple colour schemes, are bound to add interest. The result is that the garden, whether really beautiful or not, compels interested attention, and admiration can scarcely fail to follow.

I came across quite a small garden some time ago which impressed me as being particularly successful, not altogether because it was filled with beautiful flowers—though they were abundant—but because it showed how apparently hopeless conditions can not only be overcome, but can be turned to excellent advantage. In the middle of this garden, which could not have been more than fifty or sixty feet long, stood a giant elm tree, casting shade over half the area, surely a sufficient drawback to daunt the most enthusiastic. Yet the owner had built a mound of soil round about the butt of the tree, and had surrounded this by a little paved path; then came two or three more raised beds margined with rock and stone, and again encircled by paved paths. Arabis, Mossy Saxifrage, Aubrietia, London Pride, and other simple flowers filled the crevices and fell in festoons over the rock face. In the beds were such homely flowers as Solomon's Seal, hardy ferns, Welsh Poppy, spring flowering bulbs in great variety, a few Liliums and so on. Higher up the garden, still in the shade, was a little pool flanked by Globe flower (Trollius), Royal fern, Japanese and other hardy Primulas, Iris and other flowers that love a moist spot. Such perennials as Michaelmas Daisy, Hydrangea, Scarlet Lobelia, Plaintain Lily, Delphinium (Larkspur) and Oriental Poppy were happy enough. On the sunny side of the elm tree another paved path led to further raised rockeries and to a little formal garden. Who shall say that even a garden in the shade is hopeless?

Hints on Garden Planning.—The charm of a garden is most easily enhanced by adding, with care and taste, to the variety of its features and contents. One that is laid out in



An Ugly Ending to a Garden Path



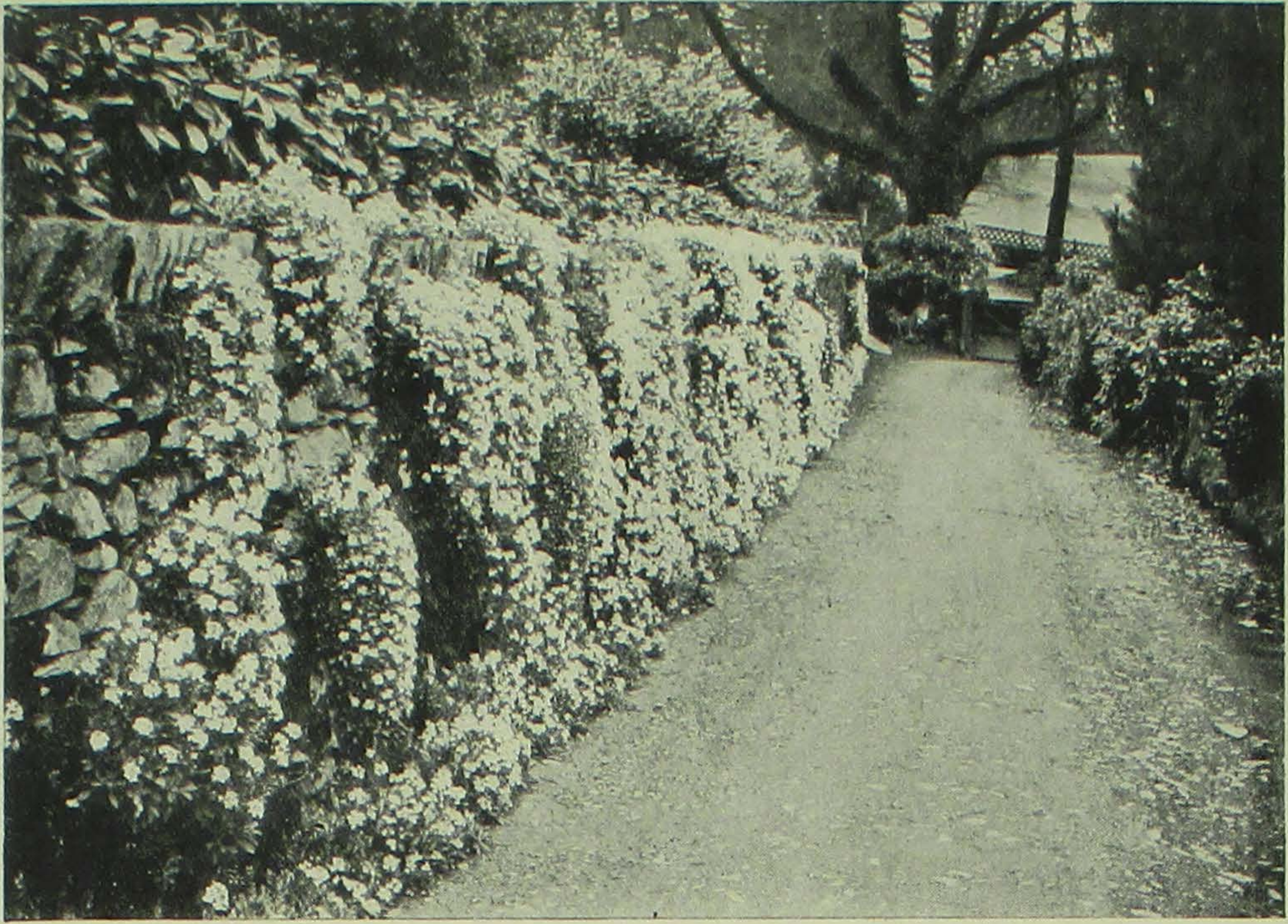
A Simple Way to Remedy the Defect

square or oblong beds intersected by straight paths, and of which the whole may be seen at a glance, can scarcely appeal to a lover of the beautiful, though it may, and often does, in this form enable one to grow plants really well. So much depends upon the personal point of view. If finely grown plants appeal to one as the most interesting form of gardening, then the design can scarcely be too simple; every plant must be so situated that one can attend to its wants as occasion demands. If, however, the garden appeals in a different way, if one feels that it should be a little haven of rest and peace, where the plants are considered as a means to an end and not the end itself, then there must be little nooks and corners, cool arbours and shady seats, brilliant colour and leafy green, flowering screens as enclosures, little hills and dales, hidden surprises and bold outstanding groups—something at every turn to arrest the attention and ever something fresh for the mind's anticipation.

There should be no neglected corners in the garden; use can be made of every square yard. In the shady parts there may be sown Forget-me-nots (which will in future years sow themselves), and as they fade seeds ought to be put in of the blue Woodruff (Asperula azurea setosa). There, too, one may plant the white Woodruff (Asperula odorata), hardy ferns in some of the new and attractive varieties, scarlet Lobelia, Plaintain Lily (Funkia), Star of Bethlehem (Ornithogalum umbellatum), Apennine Anemone, our own wild wood Anemone (nemorosa), the Spring Star Flower (Triteleia uniflora), hardy Cyclamen, Squills or Scillas, among which the wild Bluebell is included, together with Daffodils, Japanese Anemone, Japanese Primroses, London Pride and Lily of the Valley.

Let every patch of ground be covered, for only by so doing is it possible to get the best out of a garden. Even under trees one may plant St. John's Wort (Hypericum calycinum) and the variegated creeping Euonymus (radicans variegatus).

Round the garden there should be wreaths of Roses and Clematis, Laburnum and Wistaria and other flowering shrubs that are admired. These, while not forming too dense a screen, will enclose the garden with fragrant flowers and pleasant greenery and assist to create that sense of restfulness and quietude upon which the charm of a garden is so largely dependent.



Spring Flowers (chiefly Arabis and Aubrietia) on an old wall at Windermere

Making Trellis Work.—Trellis forms a very satisfactory support for many climbing plants, and can be employed with good effect in various ways in numerous positions in the garden. Trellis work of simple design and form can be made and put together by almost anyone who can handle a hammer and saw, and several suggestions, which can be enlarged or modified to suit individual tastes and requirements, are illustrated herewith. Either planed or unplaned wood can be used in the construction of trellis, the former, of course, producing a better effect. Unplaned trellis should be twice coated with brown preservative stain, whilst planed work can either be stained or painted, but in each case it is desirable that the bottoms of any upright posts that have to be let into the original ground should be well tarred or coated with preservative previous to being fixed, in order to prevent decay.

The laths generally used for trellis vary considerably in strength and section, and may be anything from 1 inch by ¼ inch up to 1¼ inches square, the latter, of course, being used only for very large mesh work. The usual angles or slope of the laths in ordinary diamond trellis are 60° and 45°, and in order to facilitate cutting the ends of the laths to suit the angle desired, the contrivances illustrated at A and B in Fig. 1 will be found very useful. As will be seen, they consist of triangular pieces of wood similar to set squares with a piece of lath screwed to one side to form a rebate. The end of the lath is placed in the rebate as shown at C, and a pencil mark made to indicate the angle and position to saw off the end. The angles of the set squares A and B are 60°, 30° and 90° and 45° and 90° respectively. Set square B can also be employed for marking off square ends on laths.

The simplest way of constructing ordinary plain diamond trellis is shown at A in Fig. 2. The uprights and horizontals forming the frame are simply nailed together at the corners, and the laths nailed to the face, or edge, of frame as shown. Trellis made in this way is greatly improved by having a capping fixed along the top, something similar to B in Fig. 2. In cases where the frame of trellis work has to be fairly substantial, say not less than 2 inches square, halving as at C in Fig. 2 is the simplest joint to adopt, whilst a better finish is made if small fillets, as at D, are fixed to the inside of the framing for nailing the laths to.

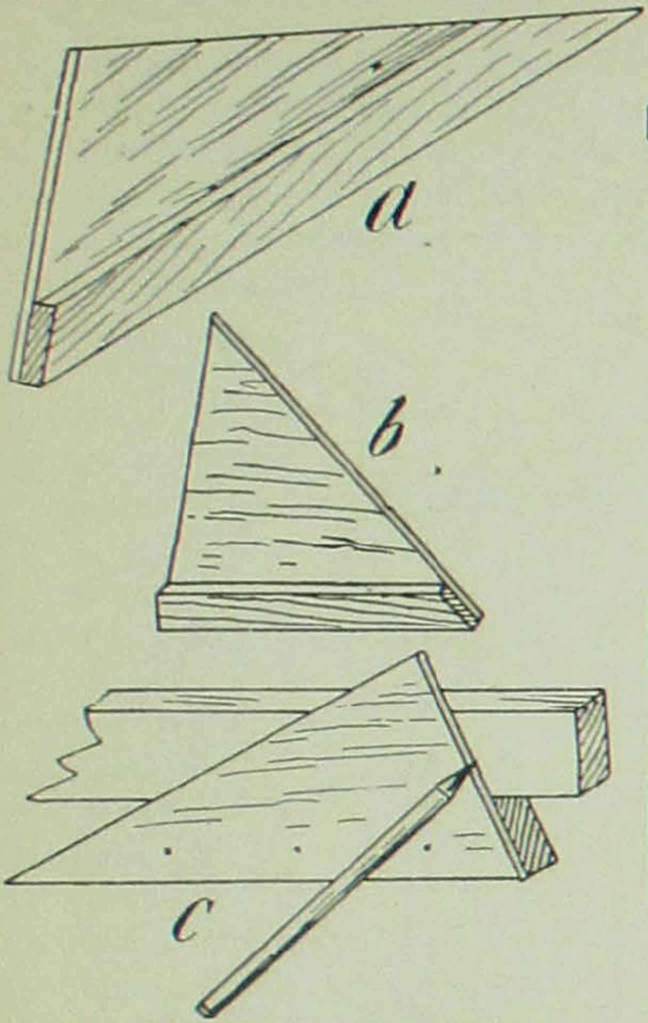


Fig. 1.—Useful Contrivances for Preparing Laths

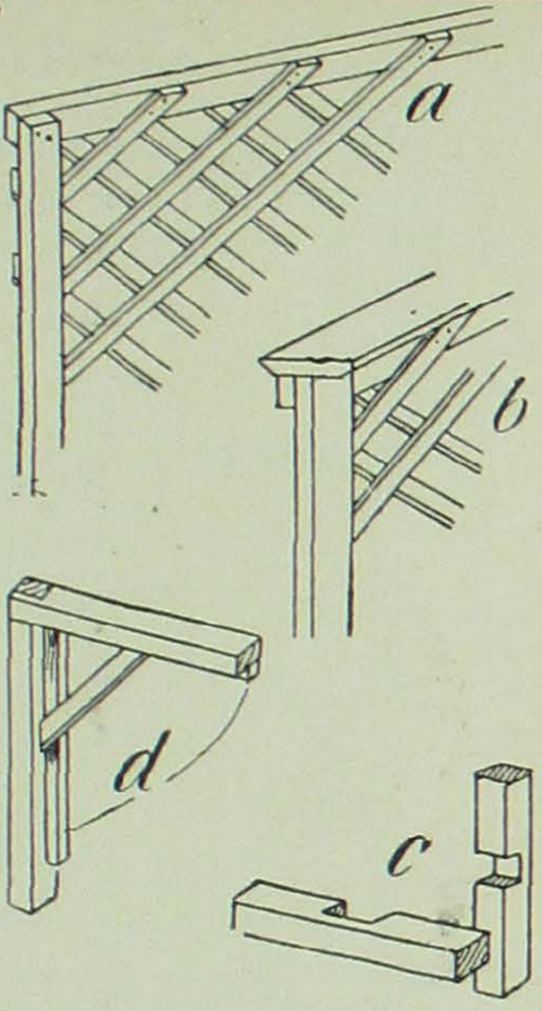


Fig. 2.—A Plain Diamond Trellis

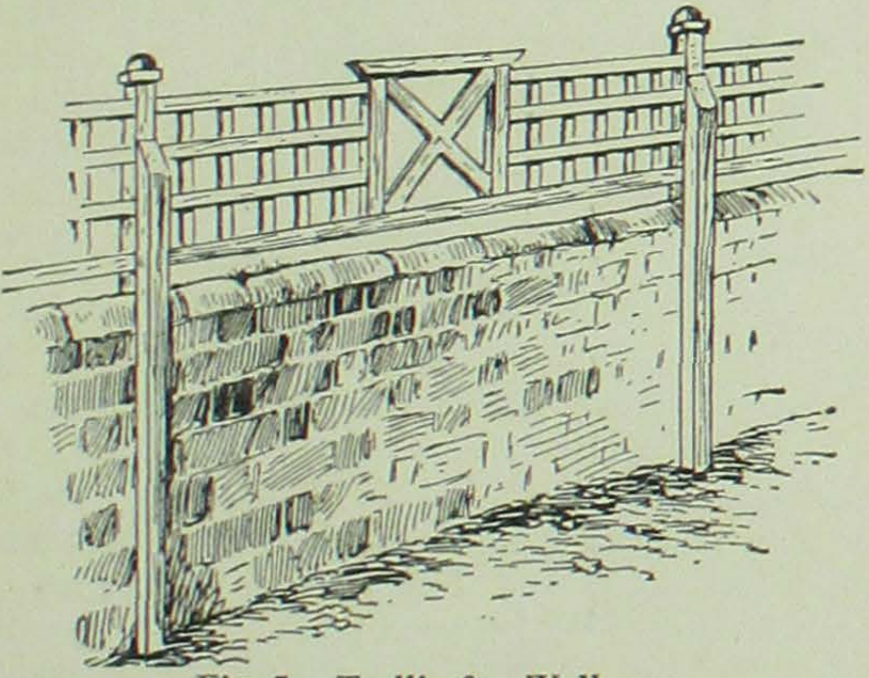


Fig. 7.—Trellis for Wall-top

A simply constructed trellis arbour to accommodate a seat is shown in Fig. 3. The size of the arbour may be 5½ feet long, 3 feet deep and about 7 feet high. If it is not desired to let the corner posts into the ground, short posts should be driven in and the corner uprights of the arbour be bolted to them to make the whole quite firm and secure.

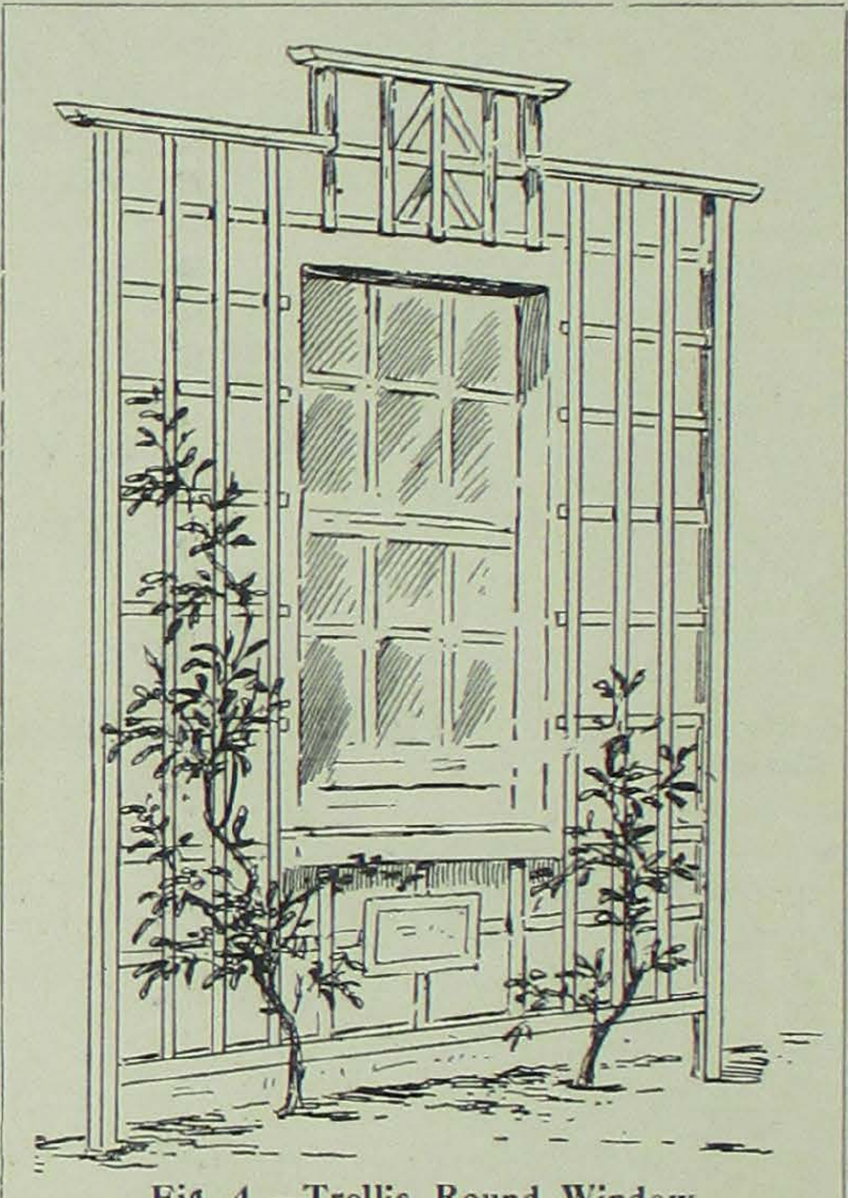


Fig. 4.—Trellis Round Window

A plain trellis surround for a window is shown in Fig. 4. A few of these about a house add much to its appearance, particularly when they are partly covered with flowering climbers. A trellis pedestal for a pot or tub plant is illustrated in Fig. 5. Climbing annuals can, of course, be grown on this.

There are many forms of trellis screens. The one shown in Fig. 6 will be found suitable for many positions in the garden. The standards should be about 9 feet apart and 7 feet high, and either one or two chains can be suspended between them. Another useful purpose to which trellis can be put is shown in Fig. 7, which explains itself.

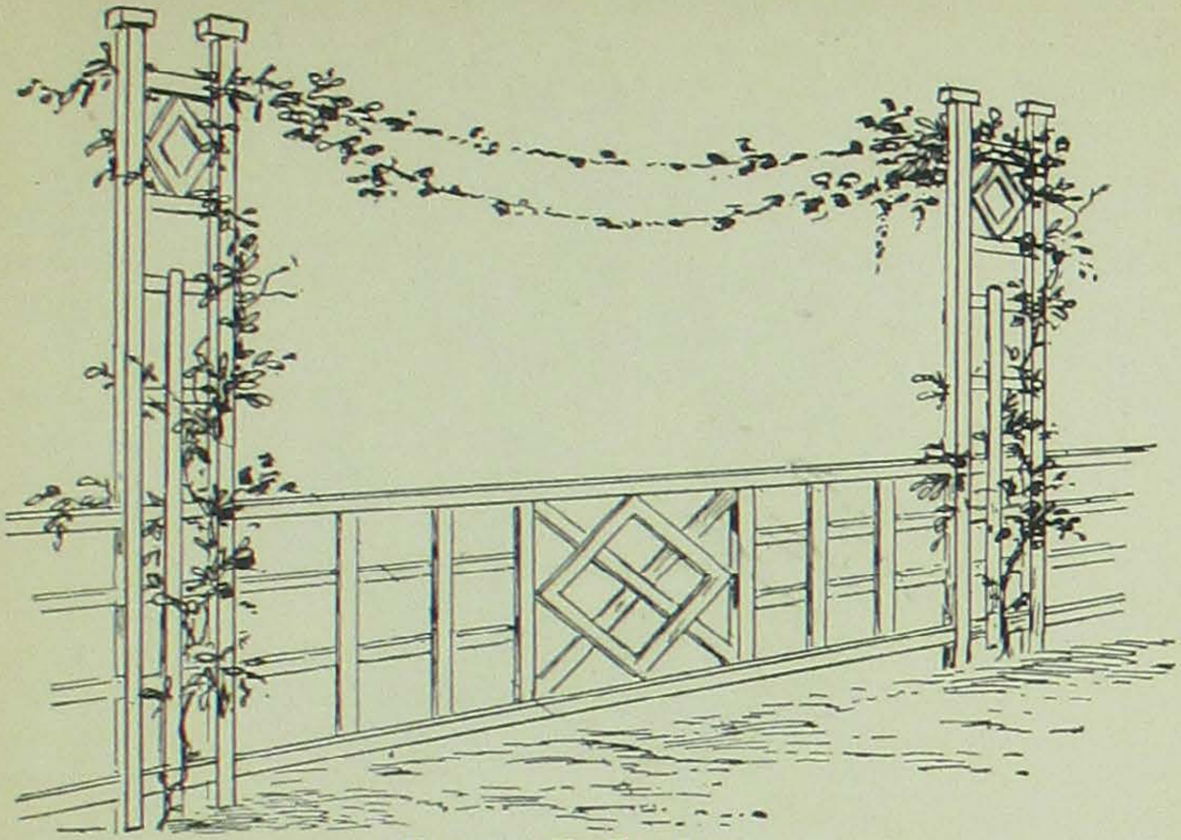


Fig. 6.—Trellis Screen

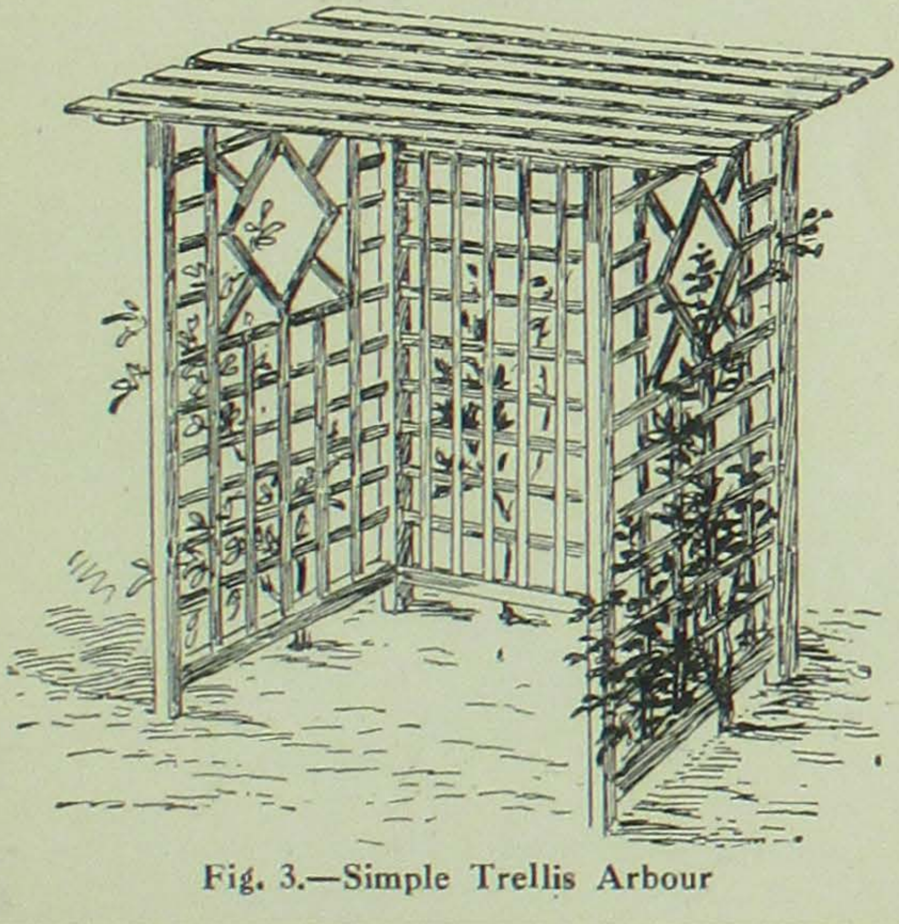


Fig. 3.—Simple Trellis Arbour

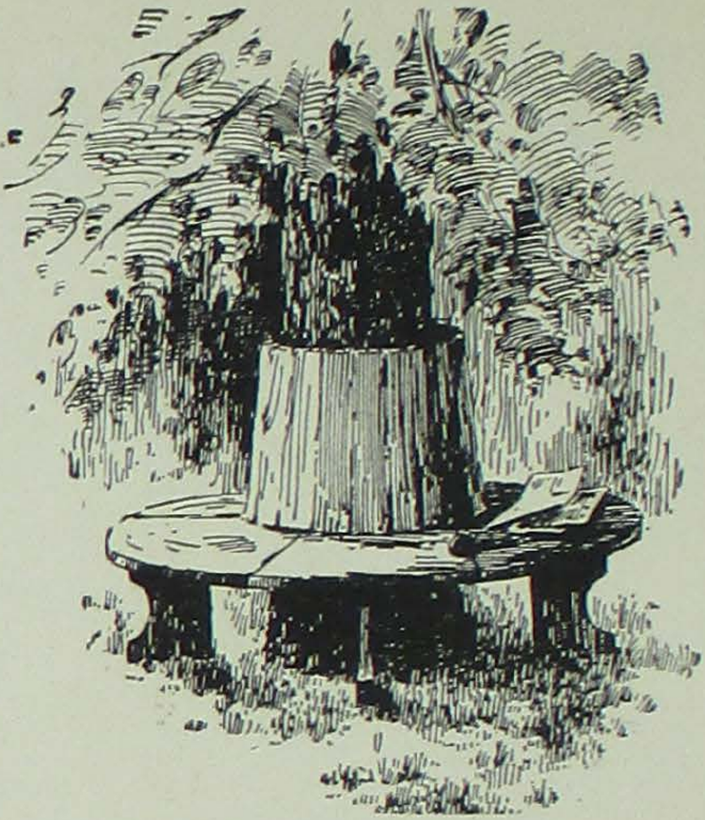


Fig. 8.—Seat Round Tree Stem

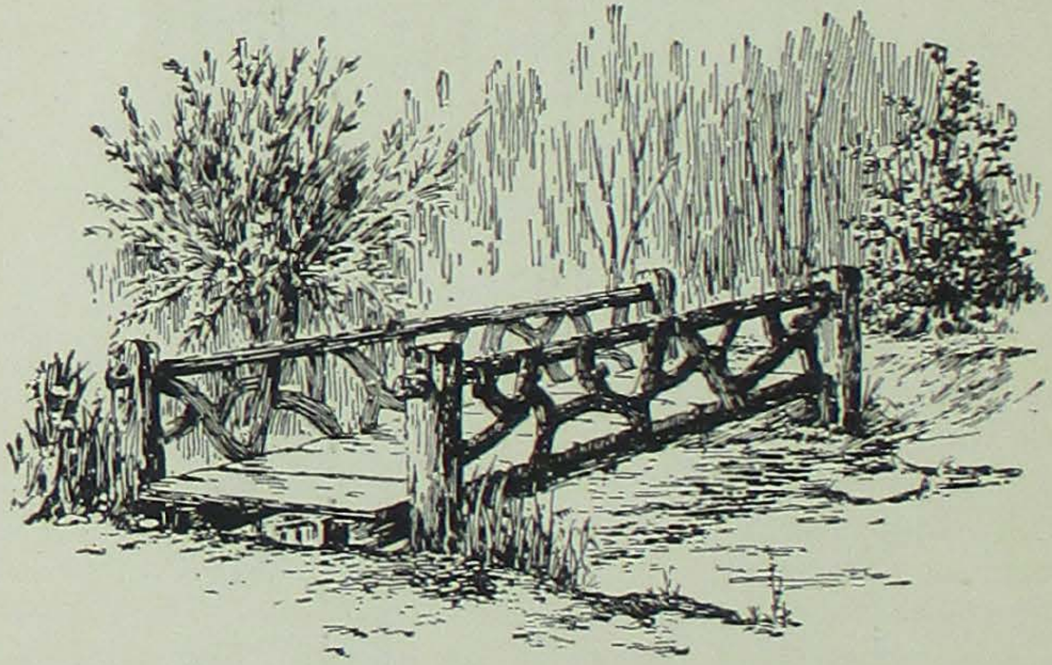


Fig. 11.—Rustic Bridge over Stream

Garden Seats and Sundials.—A garden should be studied frequently with a view to its further improvement. Too often the best natural opportunities are missed, while features are expensively added for which there exists no special scope or reason. A spreading tree, beneath which it would be enjoyable to sit, may be built round by either a seat or a table. In the former case the spot becomes a lounging one for the reader or friends who chat; in the latter, when a chair has been taken out, the busy housewife is offered a shady retreat for herself and the sewing basket. Any ingenious person can invent a chair to fold up and stow away beneath the table. Two of the illustrations (Figs. 8 and 9) show how these useful additions can be fixed to encircle tree-trunks; the veriest amateur among carpenters could make them strongly from the wood of sawn-up packing cases, and the roughness of manufacture would but add to the rustic appearance. The wood should be painted either deep brown, to match the trunk of a fir or pine, or the brownish-grey colour to which most natural wood attains after long exposure to the elements. This unobtrusive tint can be blended to

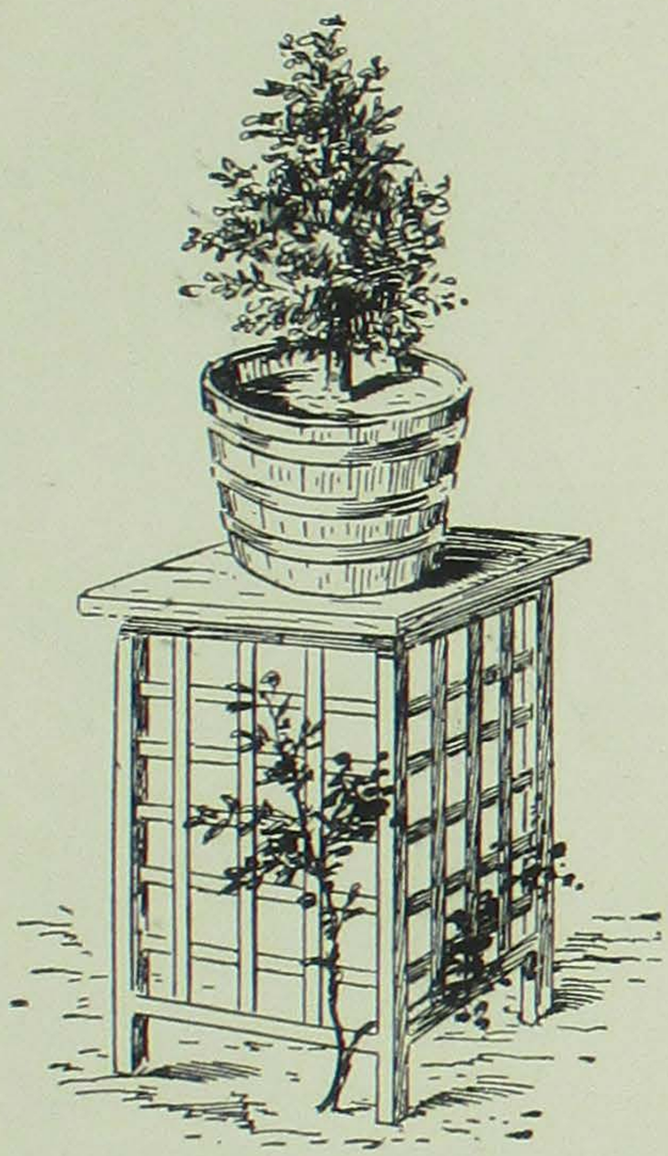


Fig. 5.—A Trellis Pedestal

match virgin cork, or inspection of the bark of full-grown elms will suggest it.

A novel ornament can be made by mounting the plate and gnomon of a sundial, not on the usual pillar or pedestal, but upon a species of cairn built of old stones fastened together by cement. The foot consists of an ancient paving stone, on which a motto could be chipped or scraped by use of hammer, chisel, and knife. Irregularities of the sides improve the effect; in chinks tiny rock plants should find a home, and a slow-growing variety of Ivy, such as marginata minor, ought to be planted at the base. As it is often possible to buy a "top" of a sundial cheap, the amateur's attention is specially drawn to the pillar made of natural stones.

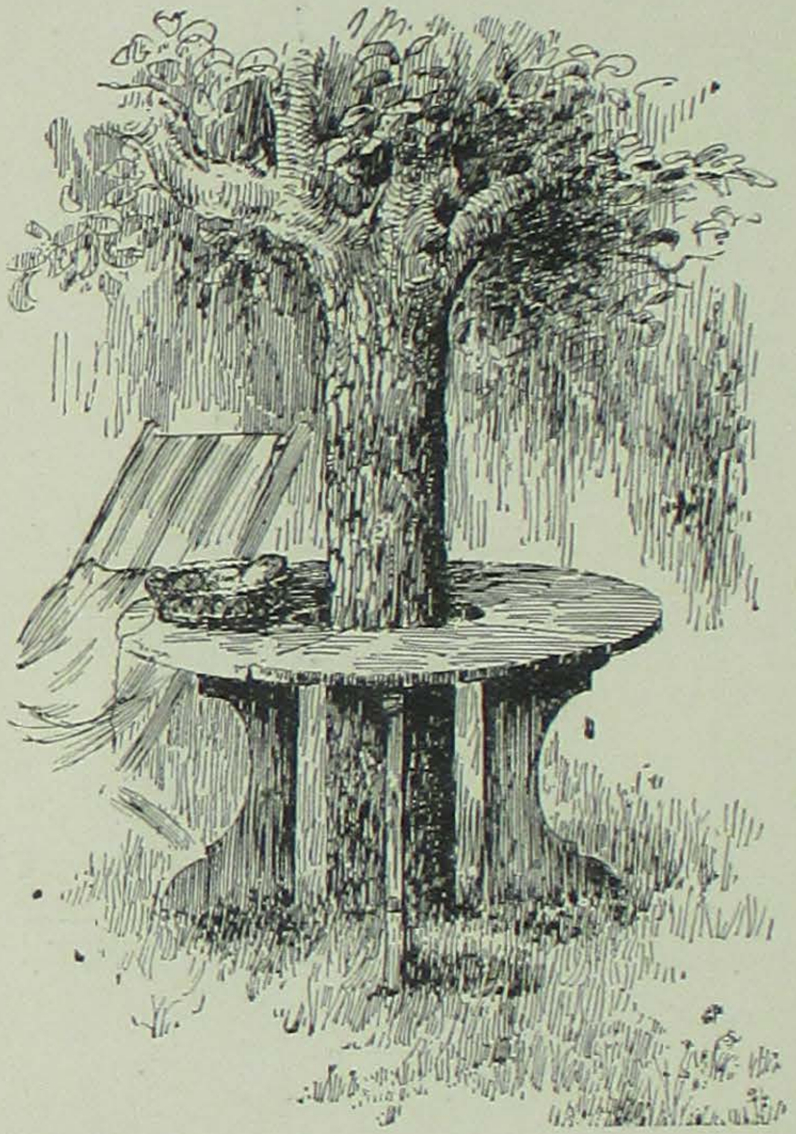


Fig. 9.—Circular Table beneath Large Tree

A restful nook of warmth in winter and coolness in summer is seen in the illustration (Fig. 10) showing a square cutting or clearance between massed shrubs or trees, and the introduction of a low, comfortable, wooden bench with a bar back. It is sometimes possible to cut this leafy shelter out of some single veteran Holly, in which case the cleanliness of the foliage and the impenetrability by rain will be found most advantageous. A Fir, of resinous odour, is the next best tree, while Yew, Laurel, Box and Hawthorn offer frequent facilities.

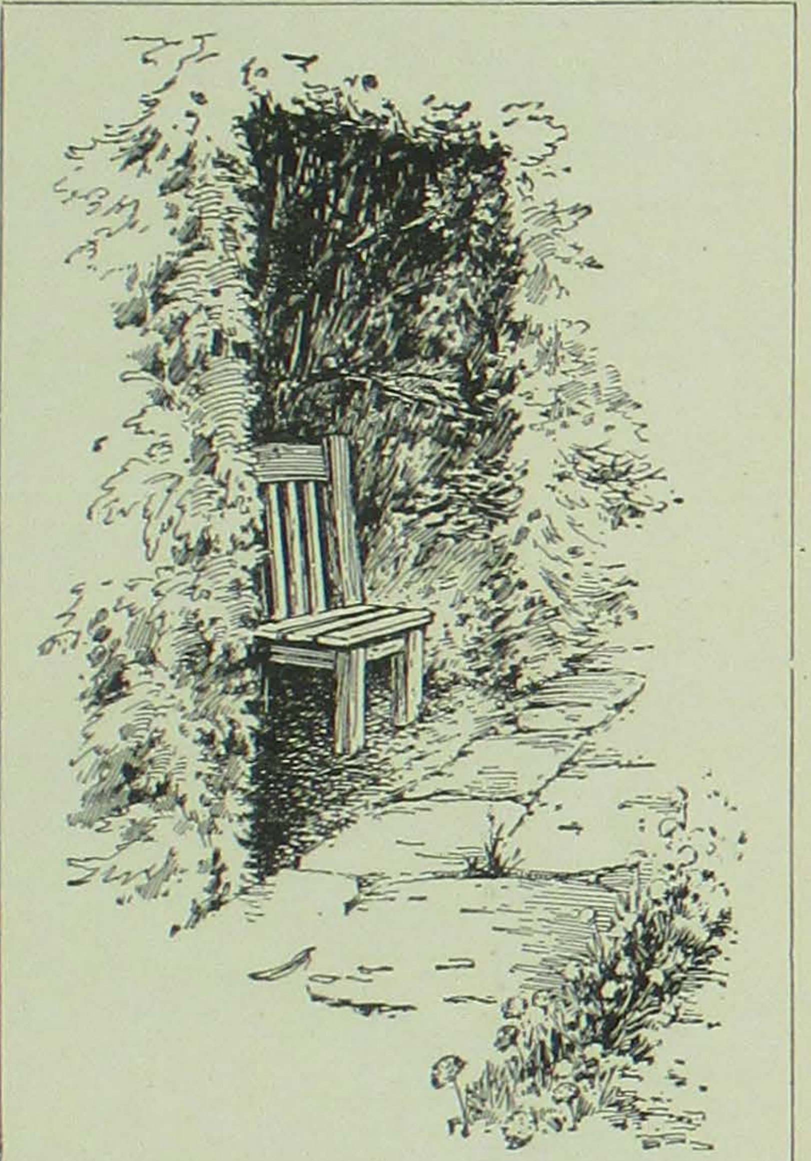


Fig. 10.—Shady Nook Cut in Shrub

Rustic Bridge and Stepping Stones.—A stream is such a beautiful feature of any garden, that when opportunity offers no pains should be spared to make the most of it. Various ways of providing crossings for a stream are shown by the illustrations. One is a wide, low plank bridge, with sides of rustic woodwork (Fig. 11); the second line of stepping stones flanked by a handrail to make the traversing easier (Fig. 12); the third (Fig. 13) consists of huge stone slabs laid down opposite a projecting tongue of earth, or another boulder, the distance between being narrow enough to step over. Margins of the water are planted with Daffodils, Irises, etc.

By concentrating the water of a stream into a basin at one point a charming pool can be arranged as shown (Fig. 14). The edge is simply formed of old stones, and use

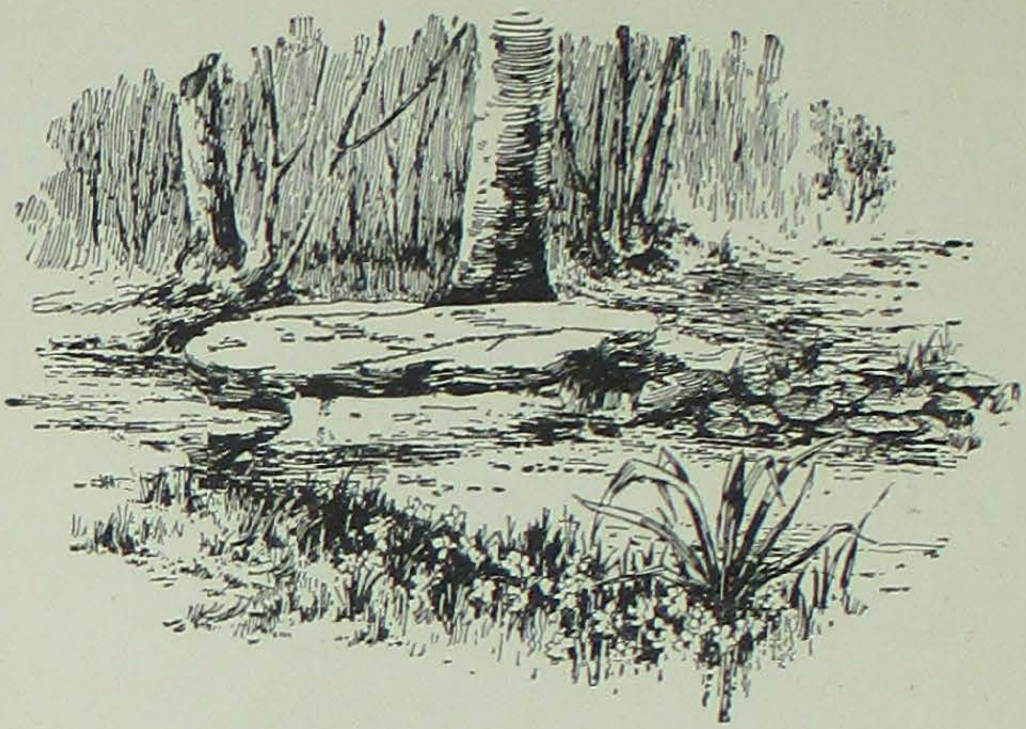


Fig. 13.—A Miniature Stone Bridge

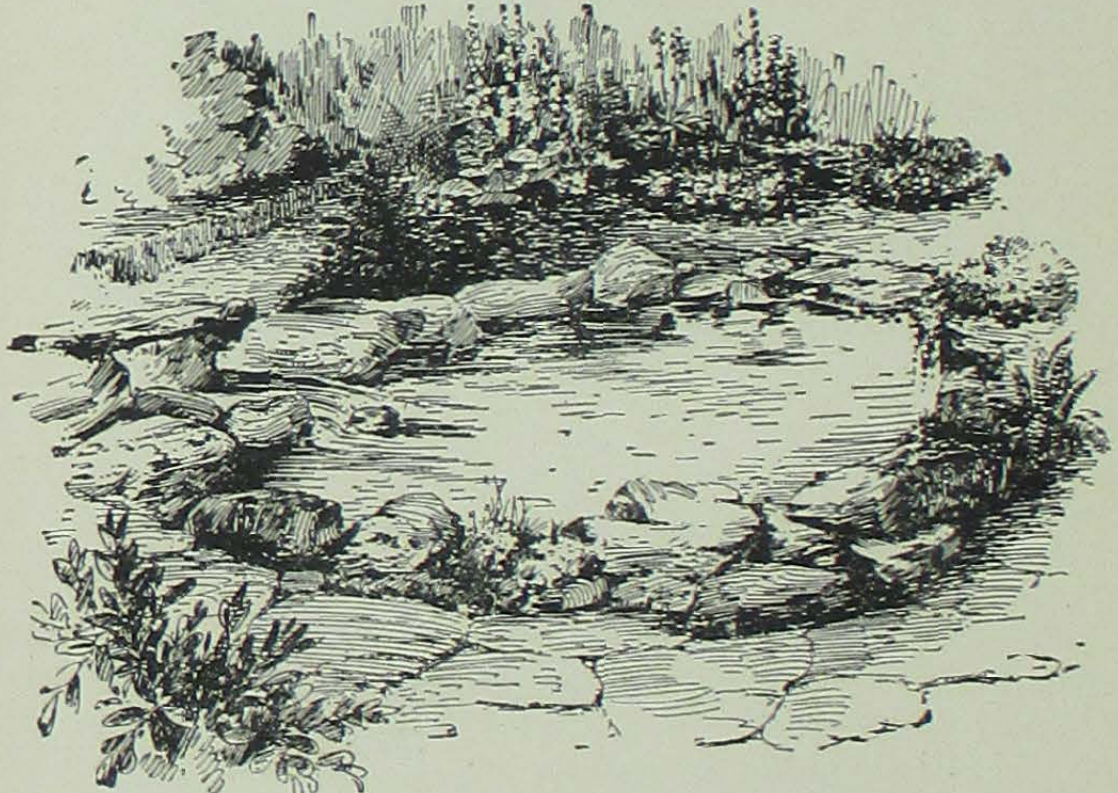


Fig. 14.—A Little Garden Pool

has been made of ferns, Mulleins, Foxgloves, Veronicas and some of the numerous other plants which delight in moist places.

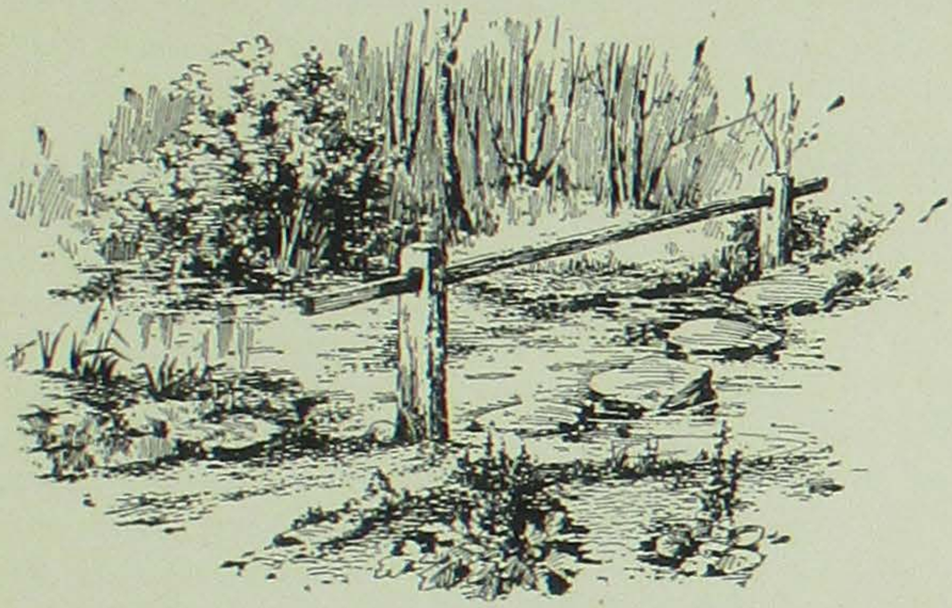


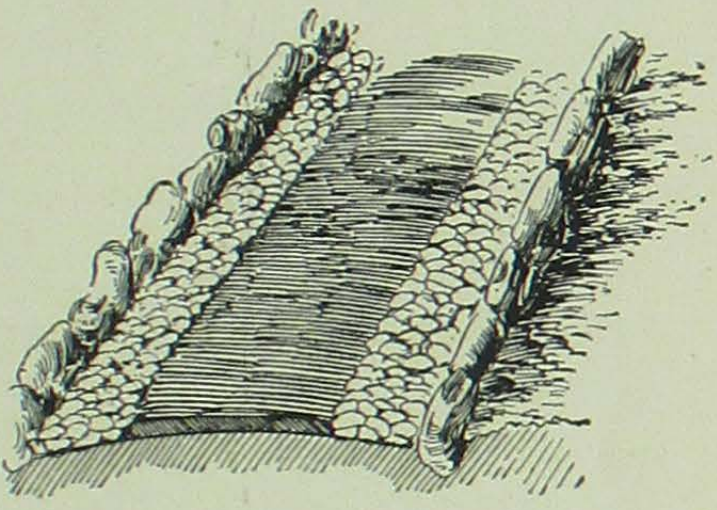
Fig. 12.—Stepping Stones and Handrail

CHAPTER II

Garden Paths

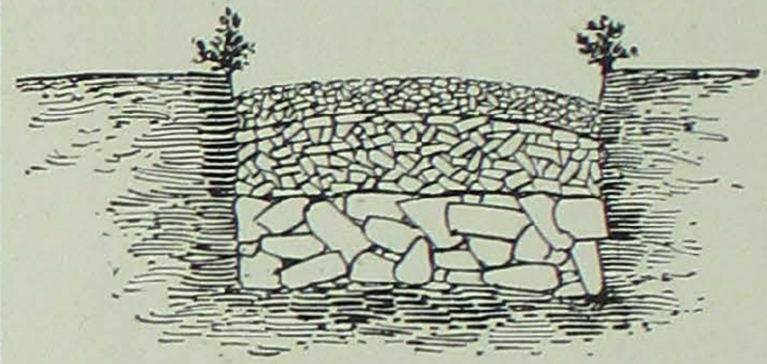
An asphalt path is probably the most useful and at the same time the least ornamental ; it is, in fact, ugly enough to spoil the most attractive garden, and is to be avoided if possible. It wears well, and is easy to sweep and keep tidy, but those attributes exhaust its claims to attention. It cannot be considered as suitable for a garden of flowers, though it may be advisable in a fruit or kitchen garden. There is no path so useful and so simply and economically made as one of gravel. If the foundation is well laid and the surface is rolled whenever opportunity offers, and especially when it is moist, a path of gravel is satisfactory. If, however, it is badly made and neglected, it is a perpetual nuisance ; the gravel sticks to the boots after the least rain, and it is difficult to keep the surface firm. A grass path is particularly attractive, and flowers never look better than when the beds in which they are growing are separated by broad green paths. Needless to say, the paths must be kept closely mown and well rolled, and the edges trim, otherwise the words written in its praise must be modified. When it is considered that the grass is liable to become bare in places if given hard wear, and that it needs a considerable amount of attention to keep it in perfect condition, it must be admitted that the question as to whether it is worth while has to be studied. Finally there is the paved path made of bricks or flat stones. This is the most expensive kind of path to lay, but it is perhaps cheapest in the end, for it needs no mowing or rolling, and there is no doubt as to its beauty. Let us consider the making of each kind of path.

The Asphalt Path.—The making of this is best left to the working builder ; he has the materials, and will probably carry out the work far better than the amateur gardener. However, those wishing to undertake the work will find the following recipe useful ; it shows how an inexpensive path may be made—one that answers as a substitute for asphalt : Take out the soil and put in 1 foot or so of broken rubble, burrs, brick-ends, ballast, broken stone, etc., and make it firm. Get together a quantity of sawdust and make two heaps of it, each containing an equal quantity. Now melt some pitch or tar in an old bucket, pouring it into the centre of one of the heaps of sawdust. Mix well and add pitch till all the sawdust of the first heap is thoroughly tarred. Allow to stand for a short time. Meanwhile mix with the other heap of sawdust about $\frac{1}{10}$ of its quantity of coarse sand. Finally mix this with the tarred sawdust till a material much like "the topping tar" of the asphalters is obtained, if necessary adding more melted pitch. The stone, etc., of the path should now have a light sprinkling of melted pitch. Then begin at once to lay the sawdust asphalt, keeping the spade well wet. A layer 2 inches thick is enough, spread it evenly and throw fine sand generously over the surface. Get your assistant to hold a water-can over the roller and roll the path at once. If the roller is not kept wet the asphalt sticks to it. If the path should ooze, put on more sand and well roll.

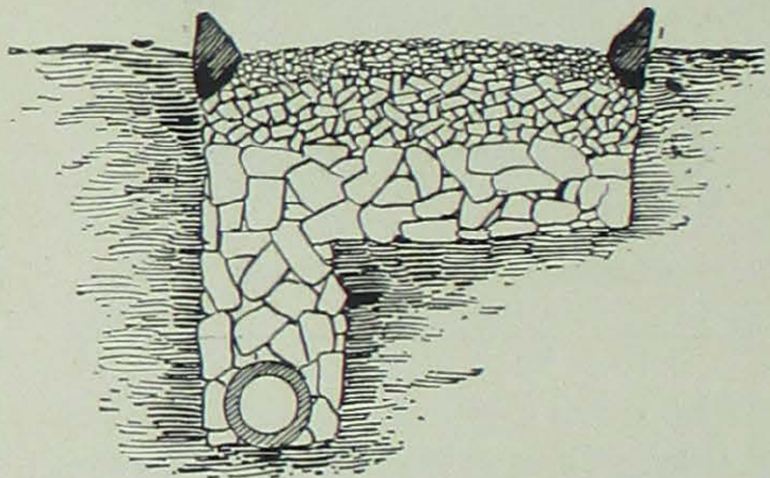

Asphalt Path with Stone Margin

In Making a Gravel Path the point of chief importance is to put in a good foundation. The ground should be excavated to a depth of quite 12 inches, the space to the depth of 9 inches being filled with rough stones, broken bricks or clinkers that will serve to ensure a dry surface. Then comes 2 inches of rough gravel, and finally about 2 inches of finer material; the two upper layers must be rolled down separately. When finished, the middle of the walk should be higher than the side, so that excessive rain may run off. One of the secrets of keeping a walk in good condition, apart from the question of its making, is to roll it frequently. If this is attended to after rain the surface becomes perfectly hard as soon as it dries again.

Weedkillers.—Weeds are a nuisance on a gravel path, and after a few rainy days they usually spring up in large numbers. They can be got rid of when small without difficulty by means of hoe or spud, but if allowed to develop they become firmly rooted, and some of them flower and produce seedlings. Then weeding is hard labour, and the amateur begins to inquire for a cheap weedkiller. Perhaps the following recipe for a home-made weedkiller will be helpful: Place quarter of a pound of arsenic and a similar amount of caustic soda in 1 gallon of water and boil the mixture until the liquid becomes clear. Pour the solution into bottles and label them "Poison." For use, take a small cupful and pour it into a gallon of water; the solution may then be sprayed on the path. It is necessary in using weedkiller to take care that it does not reach plant edgings, or it may kill them; it is usual to protect them by means of boards. Salt is commonly used as a weedkiller; it may be scattered on the path or used as a liquid.

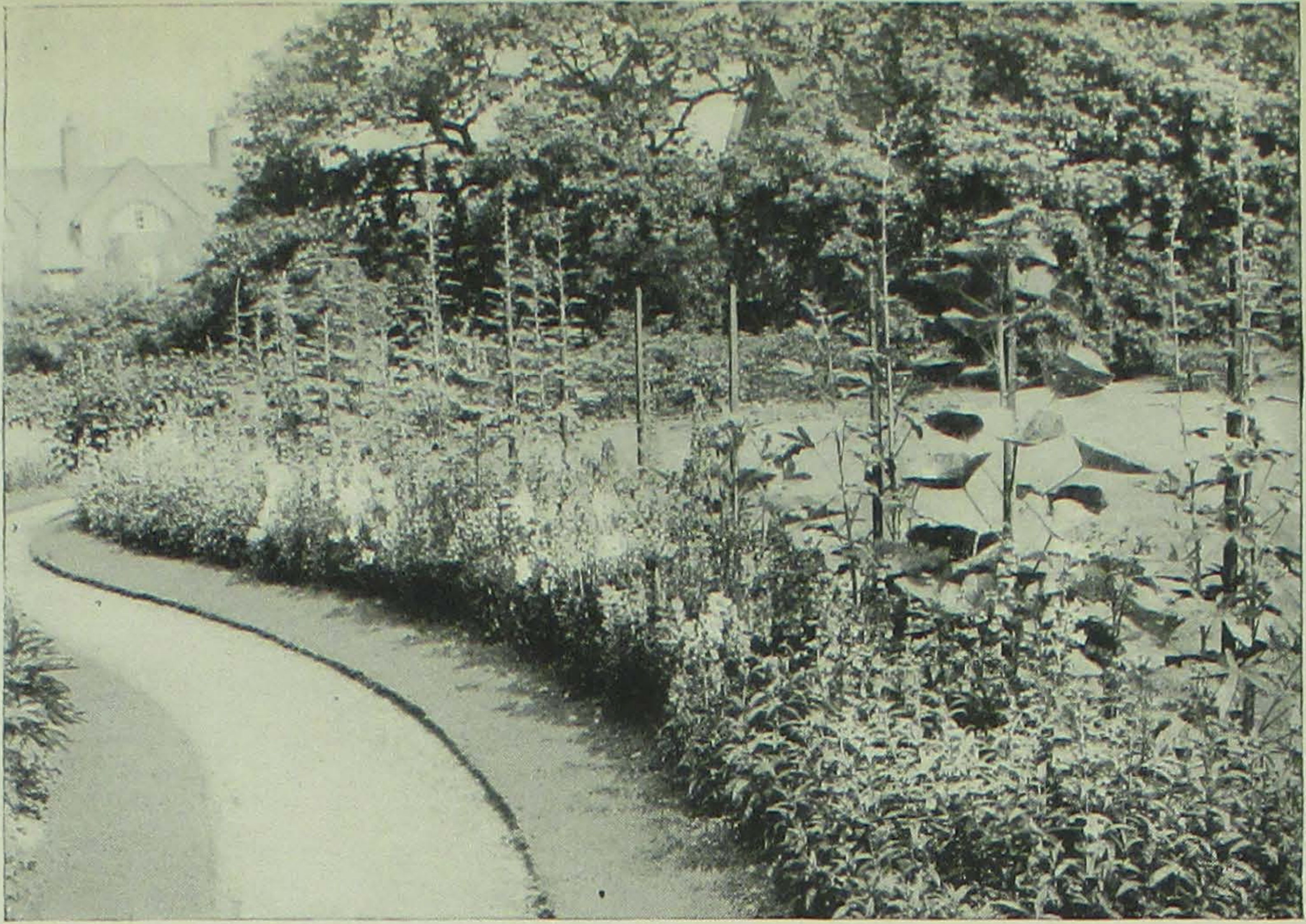


Section of Path showing Drainage, Coarse Gravel and Fine Gravel



Section of Gravel Path showing Drain at side—useful on heavy land

The Grass Path.—There is no need to go into a description



Winding Gravel Path with Broad Grass Verge of making a grass path, for the details are given in the chapter dealing with the lawn. As has already been pointed out, it is necessary that it be kept in first-rate condition if it is to add to, rather than detract from, the charm of the flower borders Bare places should be sown in September with grass seed. Advice concerning the treatment of bare places and mossy patches will be found in the chapter referred to. It is wise, when making a grass path, to have the edges straight or at least to avoid many corners and angles, for these add considerably to the labour involved in the upkeep, and hamper the free use of the lawn-mower.

The Paved Path.—It is not difficult to lay a paved path satisfactorily if the requisite care is taken; a proper foundation must be prepared, otherwise the stones or bricks cannot be laid truly and firmly. The surface upon which they are laid must be such as will allow of their being embedded evenly, and it is usual to employ sand, sifted ashes or sifted soil. They must not be laid upon rough, undug ground, otherwise they will neither give a level surface nor be firm. Not more than about 2 inches depth of one of these materials is required, just sufficient to form a bed in which the stones can be placed. The finest material for a paved path is what is known as York paving stone, but it is the most expensive, and satisfactory substitutes can be found. Old pieces of pavement can often be obtained, and these serve the purpose admirably, although they do not grow old so attractively as real stone. They should be of various sizes and shapes, so that the path may present an informal appearance, and be arranged without regard to any set design. The majority ought to be of fair size, otherwise a firm path cannot very well be made. Care ought to be taken to leave spaces here and there in which to put small plants, for one of the greatest charms of the paved path is that it offers an opportunity of growing several beautiful low-growing plants. It is worth while taking out a little soil and putting in some prepared compost of loam, leaf-mould and sand, so that the plants may the sooner become established.

Plants for the Paved Path.—Some of the kinds suitable for planting in the chinks between the stones are the common Thyme, the woolly-leaved Thyme (Thymus lanuginosus), and Lemon Thyme; Arenaria caespitosa, of moss-like growth and bearing tiny white flowers in summer; Helxine Solierolii, a creeping plant, having very small green leaves; Cotula squalida, with fern-like leaves and insignificant flowers (like Thyme, this may be trodden upon without being harmed); Acaena Buchanani and inermis, low-growing plants, the former having beautiful grey-green leaves and the latter bronze-coloured foliage. Of flowering plants one may use the beautiful little Bellflower (Campanula pusilla) with blue or white bells; Campanula carpatica, of much more vigorous growth, with large saucer-shaped blue or white flowers; the Cheddar Pink (Dianthus caesius); and the Maiden Pink (Dianthus deltoides). It adds to the charm of the paved path if, here and there, a plant of taller growth is put in, and one might well choose the grey-leaved, mauve flowered Nepeta Mussini, the Apricot-coloured Poppy (Papaver rupifragum), and the blue Flax (Linum perenne).

Instead of using stone one may employ bricks. Small red bricks of good quality look best, but they are expensive, and the gardener may have to be content with ordinary building bricks. But he ought certainly to choose red ones and not those of nondescript colour; the latter do not look nearly so well when old. If the path is of brick the edging ought also to be of bricks placed on end. If it is not deemed advisable to leave spaces here and there among the bricks, in which to insert such plants as have been mentioned, creeping plants should be planted near the edge of the path, so that they may in time creep over it. For this purpose the Pinks, Thymes, Campanulas, Veronica rupestris, Evergreen Candytuft, Aubrietia and Arabis are suitable.

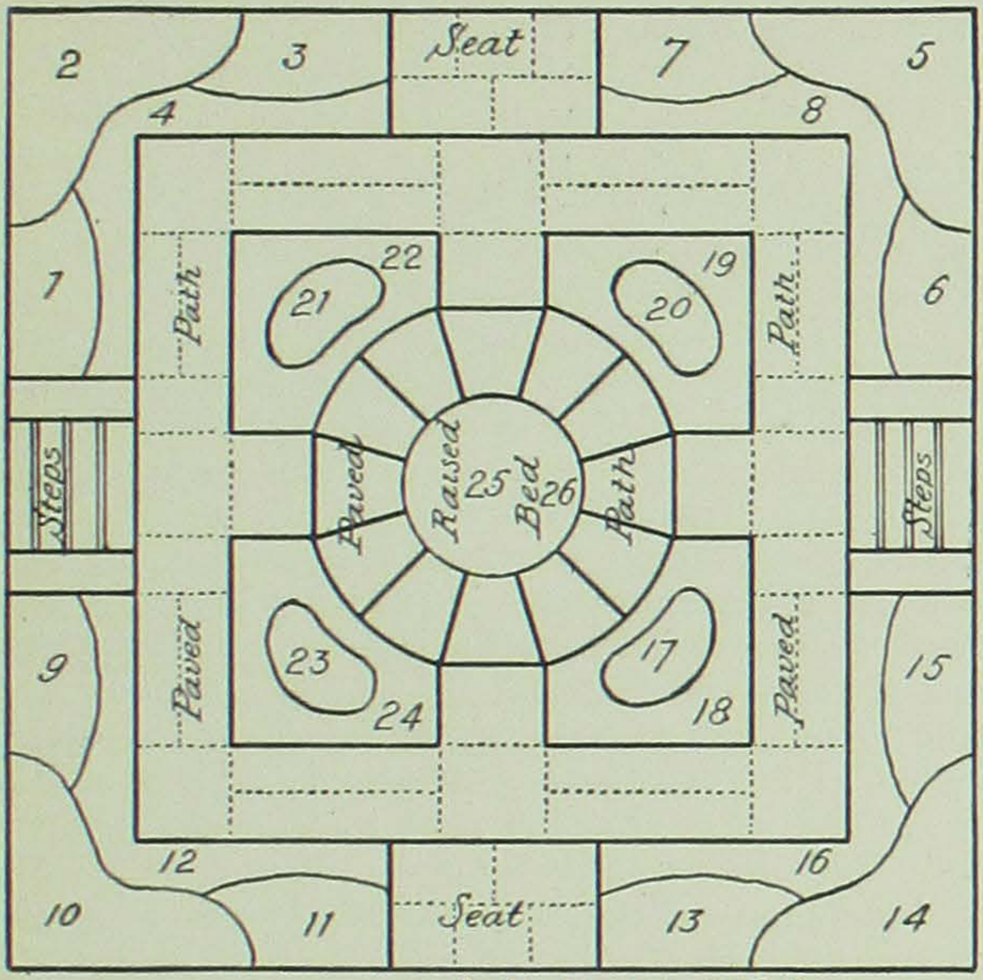
CHAPTER III

The Formal Garden

The little formal garden ought always to play a part in the amateur's scheme ; it has an especial fascination, and if carefully planned and planted possesses an old-world charm such as no other garden feature has in the same degree. The design should be simple, especially if the area at disposal is small ; the flowers will then show to full advantage. There is plenty of scope for artistic expression both in design and in planting. The centre ought to be distinctly defined by some prominent object, such as a sundial, small pond, fountain or plant vase, and the paths should radiate from it. It is advisable to have straight paths, then the beds will be straight-edged ; no space will be wasted, and the formal effect will be retained. Nothing adds more to the old-world charm of such a garden as this than the presence of stone rightly disposed ; therefore the paths ought to be paved or, if this is not possible, they should be of brick. If spaces are left here and there between the stones they can be filled with little creeping plants, and when these are established they add immensely to the charm of the formal garden.

Considerable care is necessary in placing the stones or bricks, for it is essential that they should be on the same level. This is made possible by laying them on a base of sand, ashes or finely sifted soil, in which they can be pressed firmly and made perfectly level. It is impossible to place them properly in rough soil ; inequalities of surface are certain to show sooner or later. When putting in the plants (or seeds may be sown), it is wise to prepare a little good compost for them ; then they soon become established and spread into attractive tufts. Needless to say, if stones are employed they should be laid in irregular fashion, pieces of varying shape and size being used. If bricks are chosen they must be arranged in methodical fashion ; small bricks of the best quality look best, though they are more expensive than those of ordinary size.

If the paths are paved with stone it is not necessary to have an edging to the beds. It is, in fact, scarcely desirable, for in the absence of an edging the plants in the beds creep over the margin and make a charming show. If a sundial is chosen to mark the centre of the little formal garden, and nothing is more suitable, it should, if possible, be raised upon a stone base surrounded by a low rockery Or a raised platform of brick or



Scale: 1 inch to 10 feet.

A Simple Design for a Small Formal Garden

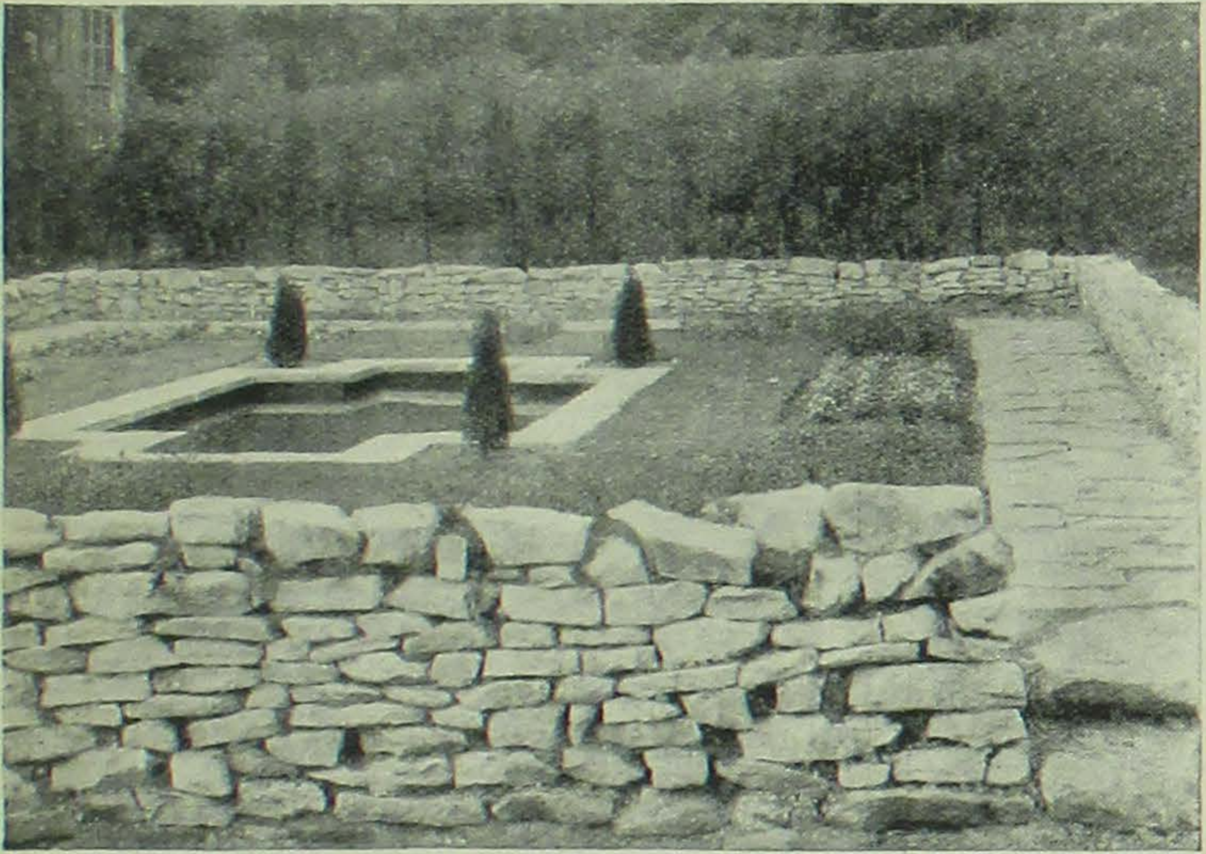
Key to planting scheme:—1, Pink Lavatera; 2, Clarkia Salmon Queen; 3, Rose Larkspur: 4, Dwarf Pink Godetia; 5, Blue Branching Larkspur; 6, Aster Sinensis, mauve; 7, Lupinus Hartwegi; 8, Brachycome iberidifolia; 9, Nigella Miss Jekyll; 10, Lavender Branching Larkspur; 11, Mauve Centaurea; 12, Mauve Candytuft; 13, Viscaria fulgens; 14, Pink and Rose Scabious; 15, Godetia Schamini, rose; 16, Carmine Candytuft; 17, Giant Rose Ten-week Stock; 18, Dwarf Mauve Stock; 19, Viscaria oculata coerulea; 20, Antirrhinum, carmine; 21, Giant Pink Stock; 22, Dwarf Lilac Stock; 23, Antirrhinum, pink; 24, Brachycome, blue; 25, African Marigold, orange; 26, Eschscholtzia, orange.

stone, whichever material is used for the paths, may be built, access being gained by two or three low steps. An additional charm may be given to the little formal garden by having sunk paved paths and low walls of brick or stone built round the beds; in the crevices of the walls many plants may be grown.

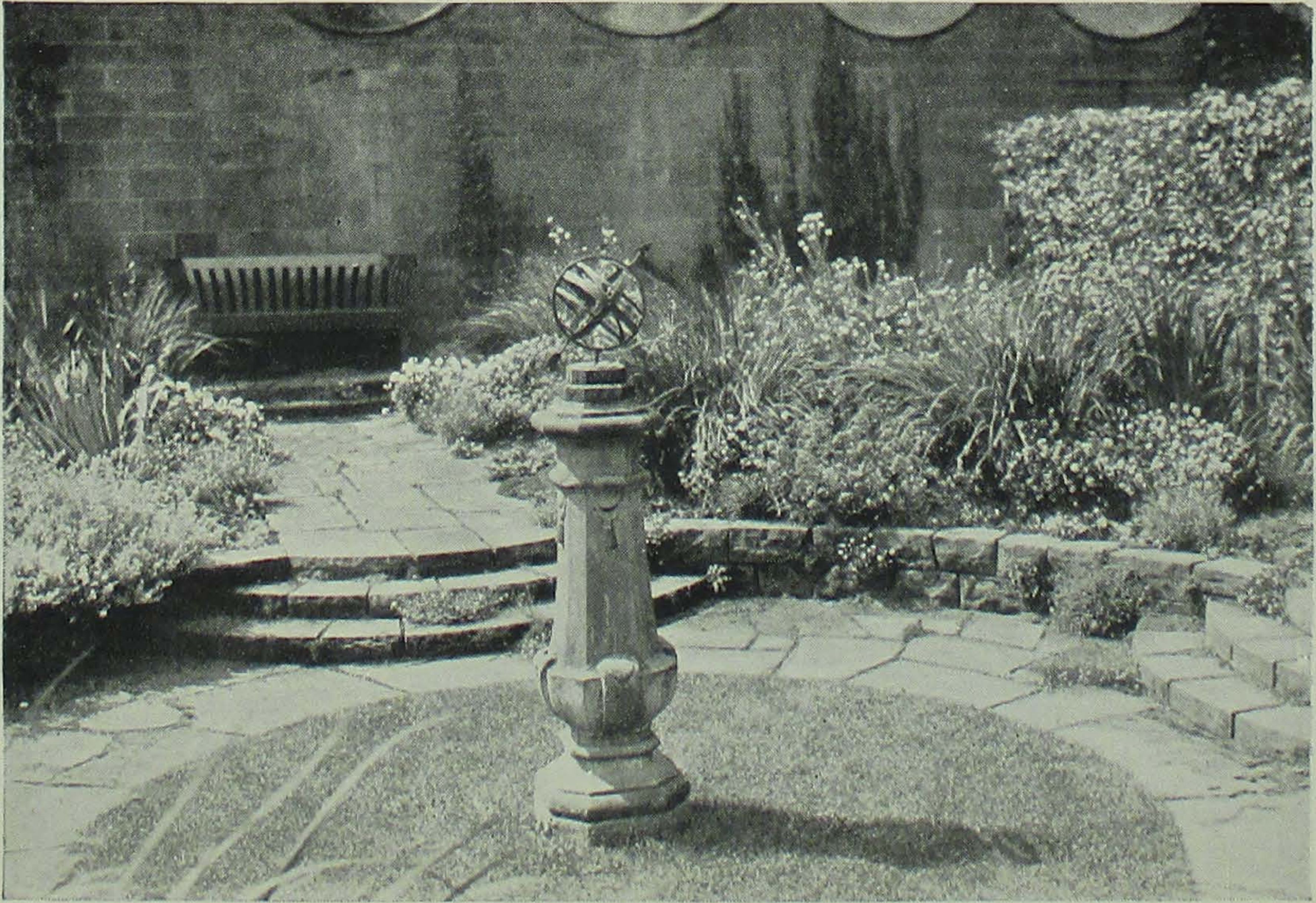
Planting the Beds.—The question of planting the beds of the formal garden is one that may be considered in many ways. It should be viewed from the strictly personal standpoint, for a garden of this kind should give expression to the intimate feelings and preferences of the owner. It is well suited to the cultivation of certain favourite flowers, those in which the owner takes especial interest. Or it may be made into a herb garden, a spring, summer or autumn garden, or planted with flowers of one colour or of two colours, such, for example, as blue and white. In fact, there is an endless choice of planting schemes. One might make of it a grey garden and plant among the grey-leaved shrubs flowers of pink and rose, lavender and mauve, and possibly nothing is more lovely than this.

For a spring display there must be groups of mauve Aubrietia and white Evergreen Candytuft; the rose-coloured Moss Pink (Phlox setacea) planted among the compact variety of yellow Alyssum, though not so close to the latter as to be overrun by it; double white Arabis as a groundwork to Tulips of different colours (no prettier combination than white Arabis and the rose-pink Tulip Clara Butt is likely to result); the pale yellow Alyssum citrinum and the pale mauve Tulip the Rev. H. Ewbank make a charming association. If the old plants of Viola or Tufted Pansy are left undisturbed, they, too, will make a beautiful display in spring, and many colour schemes can be arranged with these alone. The Poet's Narcissus blooms at the same time as the crimson Aubrietia Fire King; this forms a perfect ground covering for it; so, too, does the purple variety Dr. Mules. There ought to be groups of spring-flowering bulbs in variety, from the early Snowdrops, Crocuses and Anemones, followed by Hyacinths and Daffodils, to the Tulips, decorative Onions or Alliums (of which Allium neapolitanum, with graceful heads of white flowers, is particularly good), Spanish Bluebells and Poppy Anemones. Then are there not autumn-sown annuals, such, for example, as the orange yellow Erysimum, the pink Silene, rose and red Clarkia, and others, together with Brompton Stocks? Without much difficulty the little formal garden can be made delightful.

A Blue and White Garden.—For a summer show there is more variety from which to choose. If it is decided to make a blue and white garden the following might well be chosen: white Spanish Irises and Lupins; white Delphiniums; Oriental Poppy Perry's White; the white Trumpet Lily (Lilium longiflorum); Madonna Lily (Lilium candidum), Achillea The Pearl; white Tufted Pansy The Swan; Roses Molly Sharman Crawford, Frau Karl Druschki, and Mrs. Herbert Stevens; Sidalcea candida, a Mallow-like plant, Carnations Mrs. Henwood and Farthest North, white Iceland Poppies, Gypsophila, Mrs. Sinkins Pink, and white Snapdragons. Of blue flowers there are the Dropmore variety of Anchusa or Alkanet, Delphiniums, Lupins, Veronica amethystina, and spicata, blue Flax (Linum narbonense), Campanula grandis, persicifolia, carpatica, lactiflora, glomerata and others, Tufted Pansies, Spanish Irises, and such annuals as Love in a Mist, Phacelia, Nemophila, and annual Delphinium. These are capable of being commingled in small formal beds with excellent effect.



Formal Garden and Water Lily Pool



A Little Formal Garden

Rose and Grey.—For a scheme in rose and grey some charming plants are available. For the grey we must rely chiefly upon foliage, as, for example, of Lavender, Rosemary, Flag Irises, Southernwood, Old Man, Pinks, Nepeta Mussini (which has pale violet-coloured flowers which do not clash with the proposed scheme), Cerastium or Snow in Summer, Aubrietia, Silvery Saxifrages, Edelweiss (which will grow without difficulty in stony loam near the margin), Antennaria or Cat'sear, and the blue-flowered, grey-leaved Veronica incana (the blooms should be cut off if their colour is not required). Of rose-coloured flowers one might choose Carnations Mrs. Robert Gordon, Lady Hermione, Rosy Morn, Beau Nash, and Salmonea ; rose-coloured Sweet Peas, Sidalcea rosea, the rose pink Annual Delphinium or Larkspur (a lovely flower), Spiræa Ceres, Snapdragons, Chrysanthemums, Dahlias, Stocks, Rose Mallow (Lavatera trimestris), Clarkia, Roses in variety, the bush Mallow (Lavatera Olbia), Acroclinium (a dainty Everlasting), Paeonies, Tulips, the rose and white Japanese Lilium speciosum and Japanese Anemone. We shall, of course, find room for a few climbing plants having blooms of the correct colour, and of these there is no lack among Roses.

It is not necessary to go to the trouble of making colour schemes to render the little formal garden attractive. If the outline or framework has been fashioned as suggested, it can be done by planting a common-sense arrangement of homely old-fashioned flowers such as Lupin, Larkspur, Paeony and Poppy, Pink and Carnation, Lavender and Rosemary, Rose and Honeysuckle, Clematis and Wistaria, Old Man and Southernwood, and others that will suggest themselves to garden lovers. But above all things let the arrangement not be too formal, even in a formal garden ; the formality should lie in the design and not so much in the manner of planting. Let the creeping plants overhang the margin of the border and trail round the base of the sundial ; let the chinks in the paved paths be full of Thyme and Bellflowers, little Pinks and alpine Poppies.

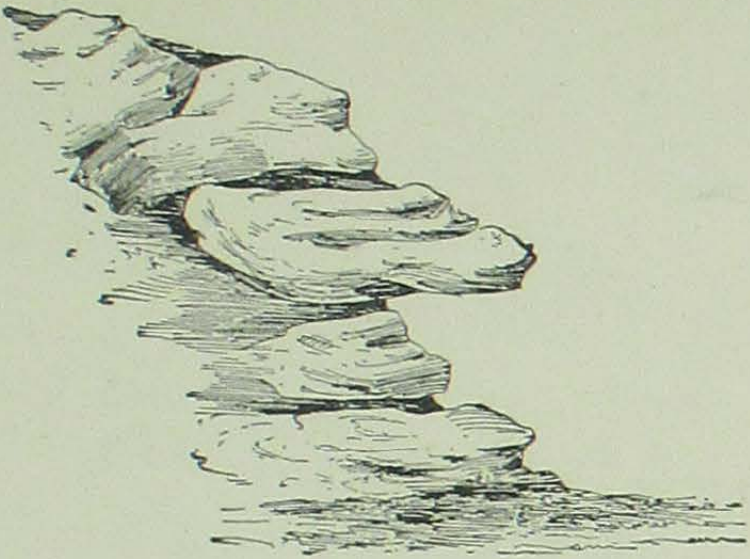
CHAPTER IV

The Rock Garden

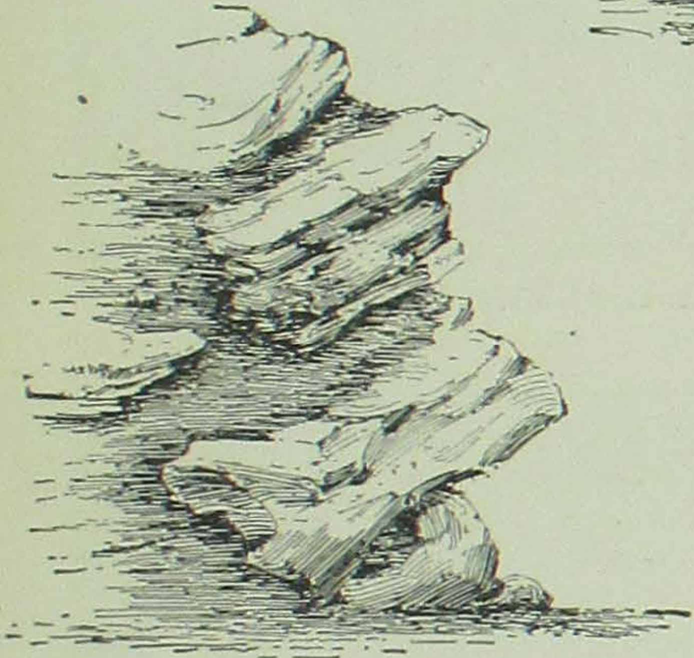
It is surprising that amateurs possessing comparatively small gardens do not more often devote them solely, or partially, to rock gardening, for the purpose of cultivating the flowers of the high mountains of Europe and other continents. Quite a small garden could not possibly be put to better use than by having the whole of it transformed into a rockery. The plants generally are of compact growth, and so many can be accommodated in a small space, that the rockery becomes of intense interest and is attractive the whole year round. Although some of the high alpines are difficult to grow, it is true of most rock garden plants to say that they present no greater difficulty than those grouped in the ordinary border. They do certainly require rather more attention, and especially is greater care needed in the initial preparation ; once established they live for years and annually increase in charm and beauty. What can, for instance, be more attractive than a rocky bank covered with Silvery Saxifrages, silver of leaf in winter and crowned by graceful pale blossom in summer ; or more pleasing than the Mossy Saxifrages, which soon spread into green, moss-like mounds of compact foliage, and in spring and early summer bear an abundance of blossom that varies in colour, with the different sorts, from white to crimson ? These are but two of an almost illimitable number available.

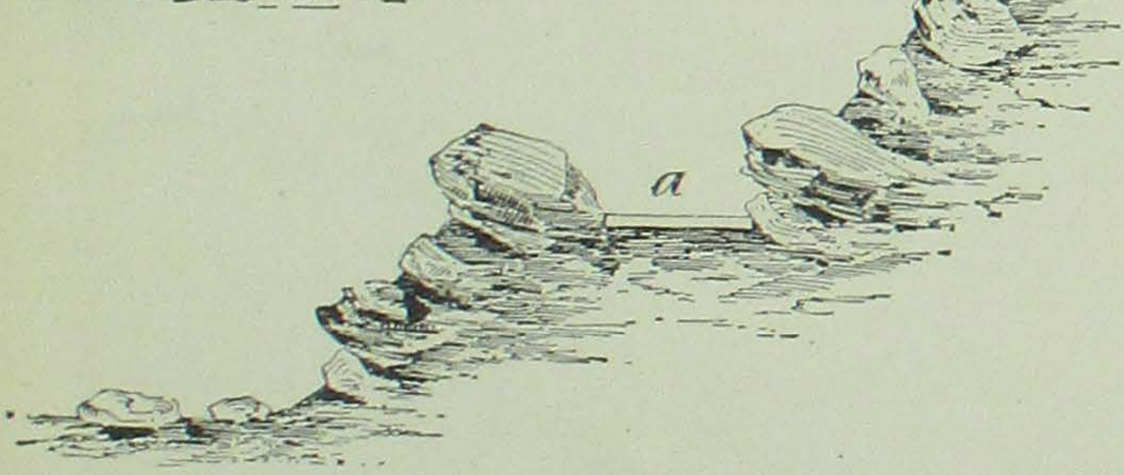
If only amateurs devoted some care to the making of a rock garden or rockery they would find that scores of lovely plants would flourish and blossom and prove an unending source of delight. On an ill-constructed rockery there are bound to be many failures. The two essentials to success may be said to be sunshine (for the great majority) and really well-drained soil. It is useless to attempt to grow a characteristic collection of alpine plants on a rockery in the shade. The Mossy Saxifrages, hardy ferns, Welsh Poppy, and a number of others less well

Overhanging ledges should be avoided as far as possible: plants below them may suffer from drought

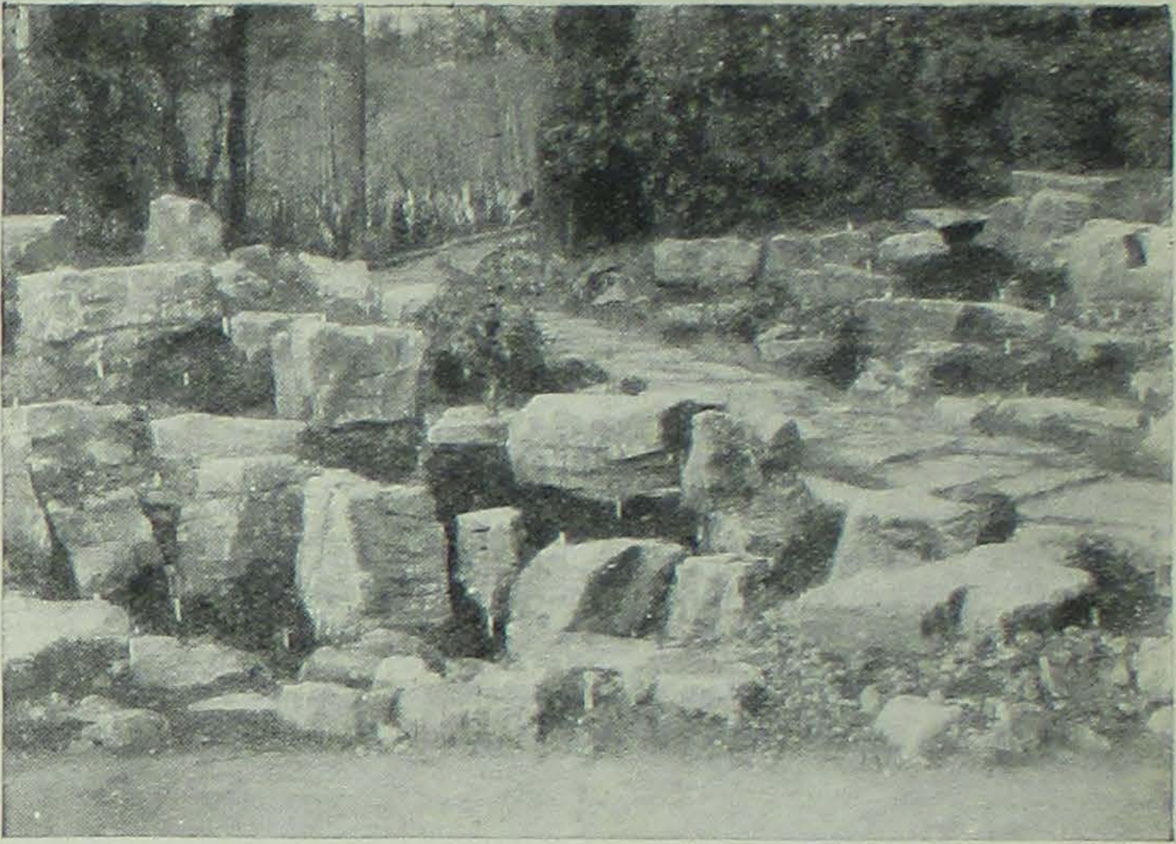


Here and there, even in the small rock garden, there should be a bold promontory of stone





Section of the Rockery, showing how the stones are placed and position of path (a)



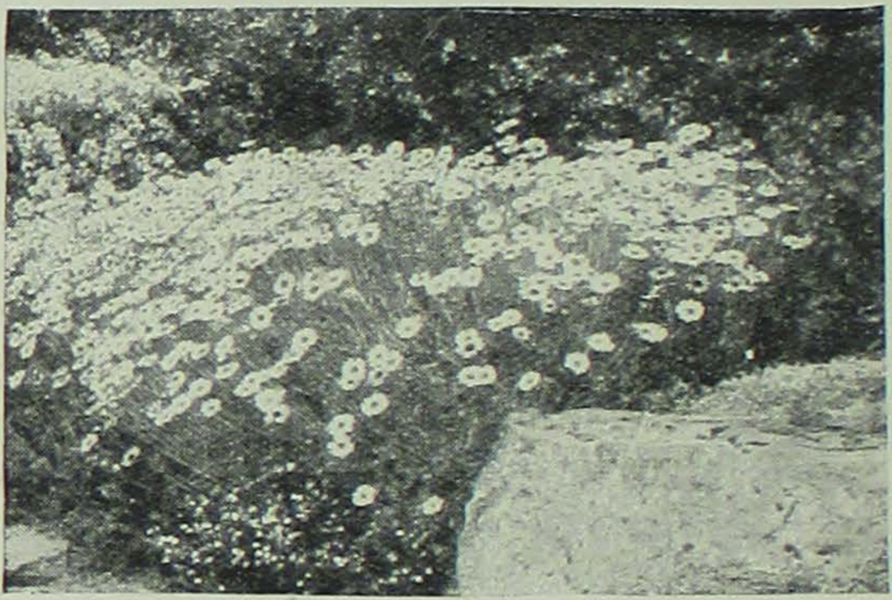
A Newly-Built Rock Garden at Ken View, Highgate

Primula denticulata. Charming for the Rockery, easily grown known will thrive there ; but to succeed with the finer beauties of the rock garden, sunshine is necessary.

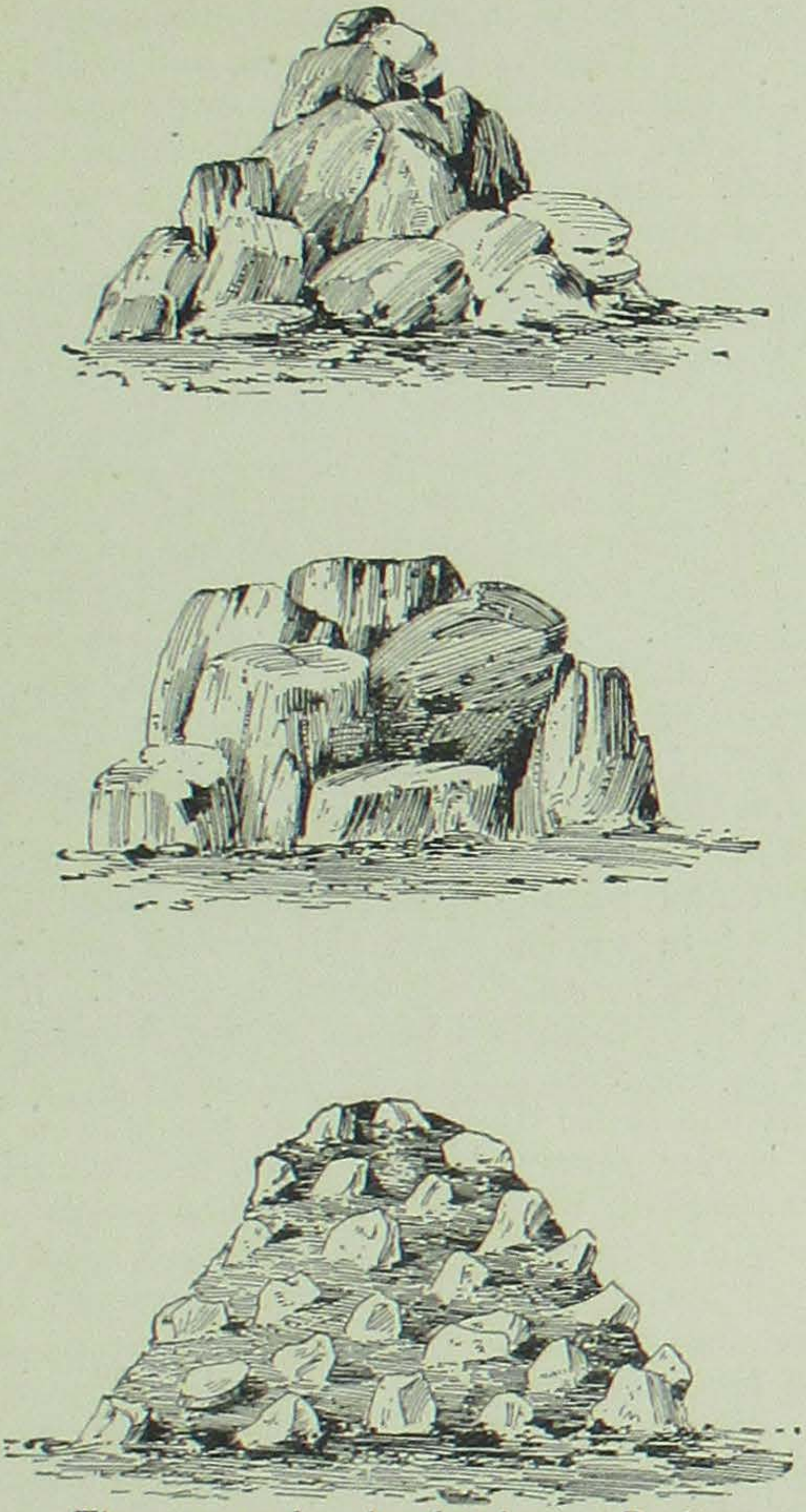
Preparing the Site.—A rock garden looks best when the banks of soil and rocks are fairly high above the ground level, but this is scarcely possible unless the area of ground at disposal is considerable. In a limited space the best plan is not to attempt too ambitious an erection, but to be content with a rock border, raised it may be only one, two or three feet above the ground level. Providing the drainage is satisfactory, the plants will thrive just as well, though they will not look quite so imposing, as in a bolder rockery. Having chosen the site, the next thing to do is to make a proper foundation. If the ground is clayey it should be dug out from 12 to 18 inches deep, the space being filled, or almost filled, with broken bricks, clinkers or burrs, to provide satisfactory drainage, upon which success so largely depends. It is difficult in a small garden to dispose of the rough soil taken out, but if it is spread thinly over the rose beds and flower borders, and continually broken down with spade and hoe, it soon becomes mixed with the better cultivated soil. If the ground is light there is no need to go to the trouble of providing artificial drainage. It is wise to place some rough turfy material upon the drainage to prevent its becoming clogged with fine particles of soil.

Then comes the work of placing the stone and of raising the rockery to the required height. One must, of course, begin at the bottom, for the rocks or stones are built up to some considerable extent one upon the other, and stability is essential. It is not an easy matter to describe in writing how the rocks should be arranged. No plan can be given; the worker must use his or her own judgment. One can, however, point out the errors commonly committed, and the things to be avoided. Do not attempt to build a steep bank in a small area, for much of the soil will be washed away from the plants in wet weather. Do not make a mound of soil and then put in the rocks. Do not arrange the rocks or stones in such a way that they are on end. It is sound building to place the stones upon their broadest base ; they can then be made thoroughly firm, a consideration of the first importance.

Building the Rockery.—Having arranged the lowest layer of stones in irregular outline, jutting out here and receding there, so as to form little promontories and bays, fill in round them with soil and make it firm in all crevices, so that when the plants' roots make their way behind the stones they will find not space, but soil. The greater part of most of the rocks should be covered with soil; the effect then obtained is that of a natural outcrop, such as is often met with on rocky banks in the country-side. Having completed the first layer, the worker should proceed to build up a miniature headland here and form a small valley there, with outcropping rocks irregularly placed. The object to aim at is to arrange the stones in as natural a manner as possible; this can only be achieved by placing them on their broadest base, and by covering the greater part with soil, thus giving the impression that the rocks have not been merely placed there, but that they have been there as long as the soil itself. The accompanying sketches will help the reader to arrange the rocks and stone to the best advantage. The bolder the rockery, the more attractive it is, as a rule. That is not to say that it must be studded all over with stones. It is far better to make a few bold groups of stone and to leave the intervening spaces almost bare, than to scatter the rocks all over the ground. The gardener should avoid placing the rocks in such a way that one overhangs another immediately beneath it; it ought to be slightly farther back. If this precaution is



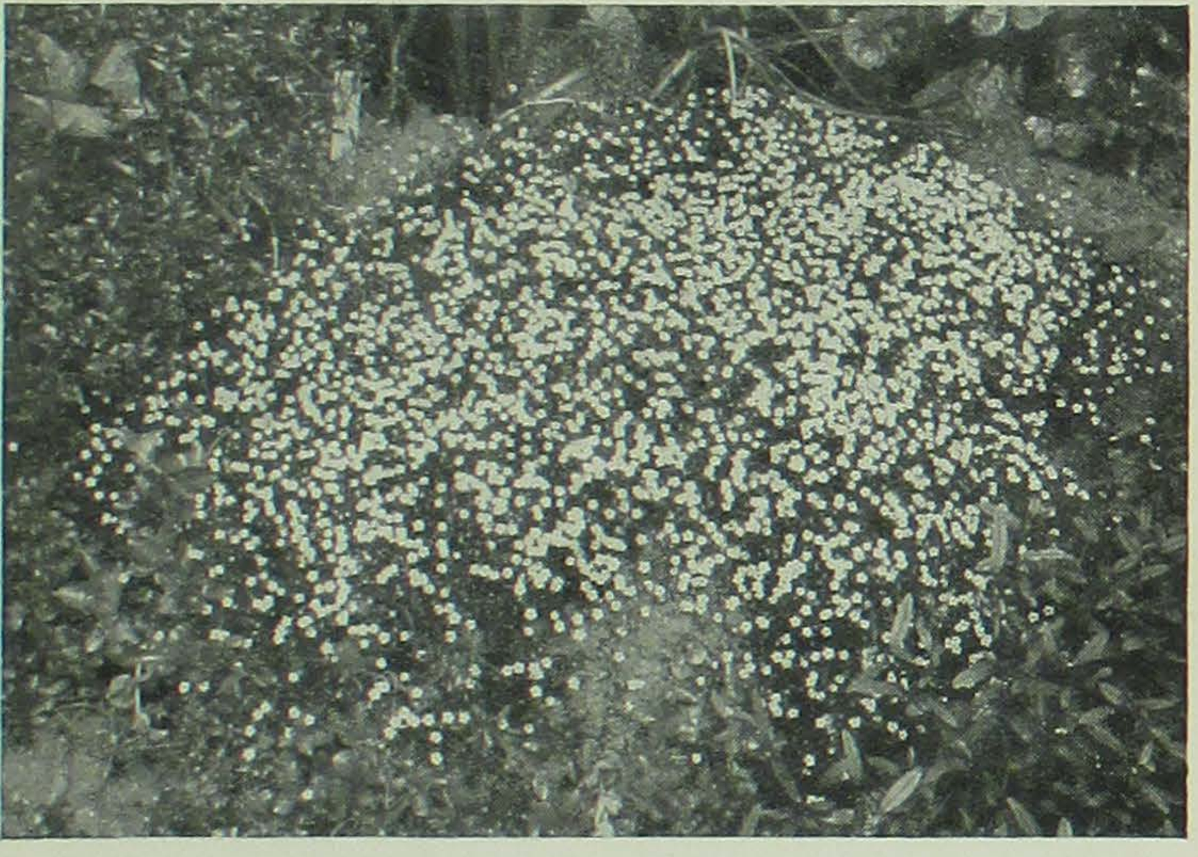
An Alpine Chamomile (Anthemis montana)



Three examples showing how a Rockery ought not to be built not taken it may happen that some of the plants remain dry even during rain, and are then likely to perish.

No stone looks more charming than limestone, but, unfortunately, it is expensive. Sandstone is less costly, and when weathered, is quite satisfactory. It is even possible to make one's own " rocks," as has been done in Sir Frank Crisp's garden at Friar Park, Henley-on-Thames. The only materials needed are bricks and clinkers and cement. The " rocks " are then built in the positions required, and when the erection is complete it is covered with cement. The appearance of the rocks is greatly improved if, while the cement is moist, the surface is covered with sand. Probably the best time to plant a rock garden is in September; if that is not possible, it is often best to wait until March, though the plants can be put out during October and November if the weather is mild. As most alpines are grown and sold in small flower pots, they receive little or no check when planted out. A large number of alpines will thrive in soil consisting of loam with which leaf-mould, grit, or broken stone or brick and sand are mixed. Providing the garden soil is in a good state of cultivation, it may be used to form the bulk of the rockery, if the other ingredients named are used. It is worth while when planting any choice kinds to take out a little of the ordinary soil and place prepared compost round about their roots. Except in special cases, this should consist of loam, leaf-mould, or peat, with plenty of grit and sand. If these precautions are taken there is a wide choice of lovely plants open to the rock gardener.

Work in the Rock Garden.—Rock plants need less attention than border perennials and roses, for example. They are rarely attacked by pests, other than snails and slugs. They are not liable to become spoilt owing to neglect of staking, for nearly all are of low growth. It is necessary to see that those of vigorous growth do not spread to such an extent that choicer and less vigorous plants are smothered, as is likely to happen, especially in a wet season. Care should be taken that the rockery does not suffer from lack of water in late spring and early summer; at that period alpines ought to be growing freely, and if then checked, owing to dryness at the root, their success may be jeopardised. Such kinds as Aubrietia, Arabis, Alyssum saxatile, Mossy Saxifrage, dwarf Phlox, and others, which soon make vigorous masses, may be partially cut back after the flowers are over; this has the effect of rendering the clumps more compact and increasing their attractiveness. Weeds are usually numerous on the rockery, and should be pulled out when young; if allowed to seed, they multiply at an alarming rate. Practically all the choicer rock plants are benefited by a top-dressing of stone chips or gravel; in fact, this is usually spread all over the soil among them. It has the effect of keeping the roots moist even in times of drought, while it is also, to some extent, a deterrent to slugs and other ground pests.



A Plant of Moss-like growth for covering stones and mounds (Arenaria caespitosa)

Increasing Rockery Plants.—The propagation of many alpines is a simple matter, and is accomplished chiefly by means of seeds and cuttings, or by detaching portions of plants having roots already attached. One may raise innumerable sorts from seed, such, for example, as Campanula, Aubrietia, Poppy, Flax, Mossy Saxifrage, Pink, Veronica, Edelweiss, Primula and many more. It would, in fact, be difficult to name those that cannot, with greater or less ease, be raised in this way. By means of cuttings, the stock of Pink, Silvery and Mossy Saxifrage, Aubrietia, Arabis, Yellow Alyssum, Gypsophila, Viola and others can be increased to a considerable extent. Then Mossy Saxifrage, Campanula, Veronica, Sedum, Houseleek or Sempervirum and Silvery Saxifrage, can be propagated by removing portions possessing already a few roots. The best time to carry out these tasks is in summer. Seeds germinate most readily when sown as soon as ripe. Under the best conditions some, such, for example, as Anemone, may take months to germinate; it is wise to sow as soon as possible after the seed is gathered. Increase by means of cuttings and rooted slips is best done when the plants have finished flowering. If placed in well-drained pots, filled with sandy soil, put beneath a handlight or in a closed and shaded frame, they will soon form roots and become established. In a few weeks they may be potted separately. It is often best to keep the young plants in a cold frame throughout the winter and plant them out in the rockery in spring.

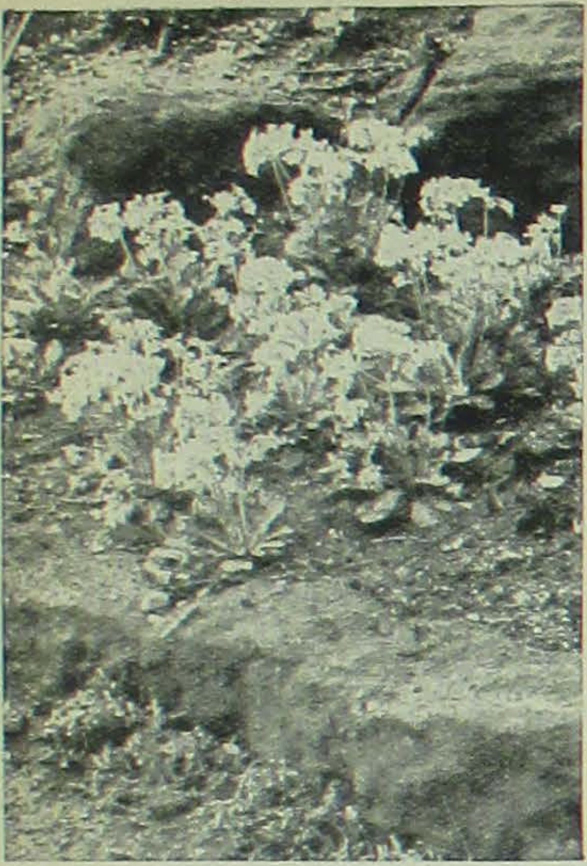
Rockery Flowers to begin with.—In the following notes are enumerated two dozen kinds suitable for a small rock garden; as his love for these flowers increases, the amateur will acquire an intimate knowledge of their requirements, and soon wish to increase his collection.

Acaena (New Zealand Bur).—A dainty little plant, well suited for planting among the chinks of a paved path, or along the margin of the rockery; its attractiveness lies in the beautifully coloured leaves and in the little heads of fruits. Two of the best are inermis, with pale bronze foliage, and Buchanani, having grey-green leaves. They spread rapidly in gritty soil.

Achillea (Milfoil).—Free-flowering plants, having grey or green leaves, and bunches of small white or yellow flowers. Low growing sorts are ageratifolia, white leaves and white flowers; rupestris, white; umbellata, white; and tomentosa, yellow.

Aethionema (Persian Candytuft).—Charming rock garden flowers, chiefly of pink or rose shade. Some of the loveliest are: pulchellum, pink; grandiflorum, rose; armenum, rose; and iberidifolium, white. They must have well-drained loamy soil, in which grit and stones are mixed, and look best when placed so that the stems may droop over the rock face.

Alyssum (Madwort).—Everyone knows the common yellow Alyssum (saxatile), which becomes smothered with bright yellow blossom in April and May, but the citron-coloured variety



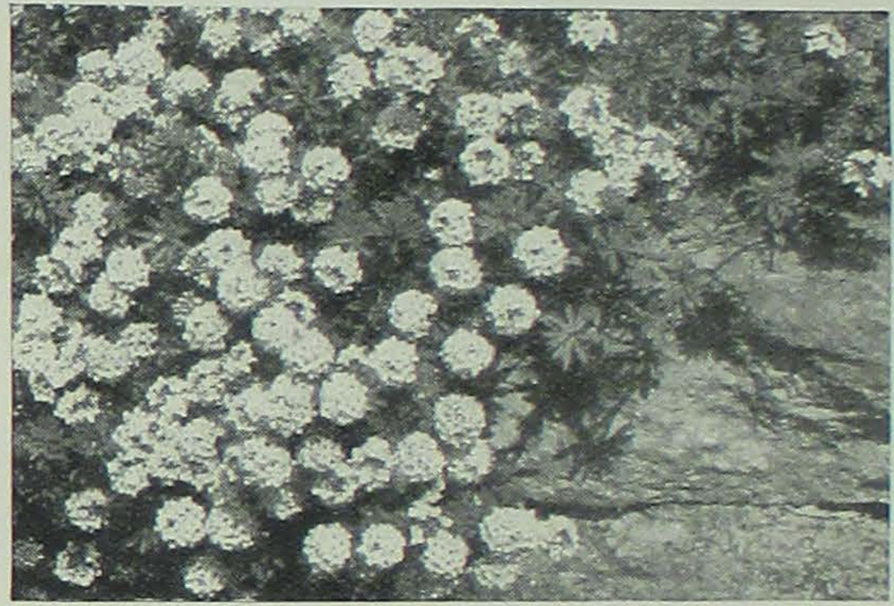
A Rockery Group of Primula frondosa

The Creeping Gypsophila repens rosea

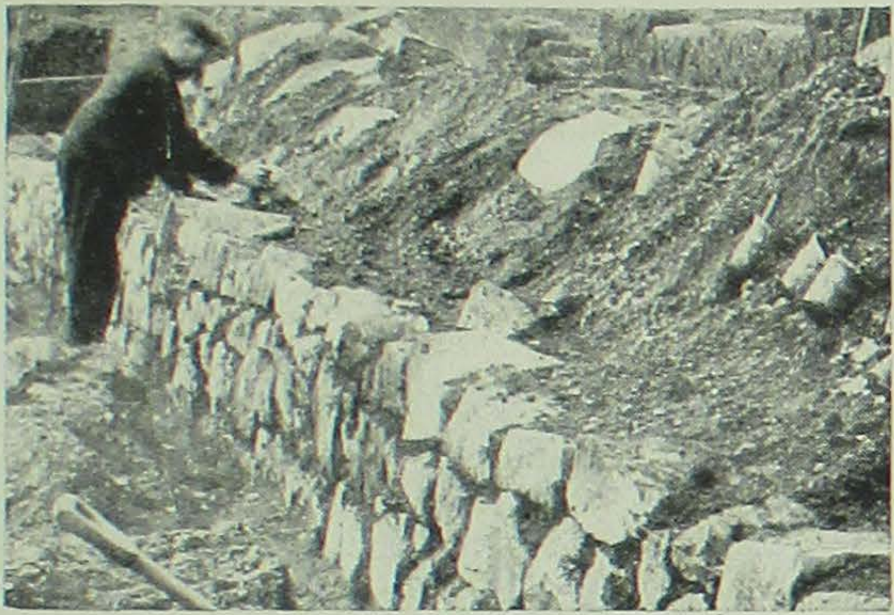
The Orange Yellow Primula Bulleyana

A Beautiful Rockfoil (Saxifraga lingulata) (citrinum), not so commonly grown, is even more attractive Then there is the compact variety (compactum), which has the merit of taking up less room than the ordinary yellow sort. Alyssum spinosum, with somewhat prickly leaves and cream-coloured flowers, is a beautiful plant. All these are easily grown in well-drained ground and in a sunny spot.

Arabis (Rock Cress).—This is worth inclusion, owing to the ease with which it is grown and the freedom with which it blooms, but it is by no means a choice plant. It should be placed where it is not likely to encroach upon better kinds, on the outskirts of the rock garden. The double form of Arabis albida is the most popular; its spikes of white blossom are very handsome. The varieties with variegated foliage, foliis variegatis, green and white, and lucida variegata, yellow and green, are attractive all the year round.


The fragrant Rose-coloured Daphne cneorum

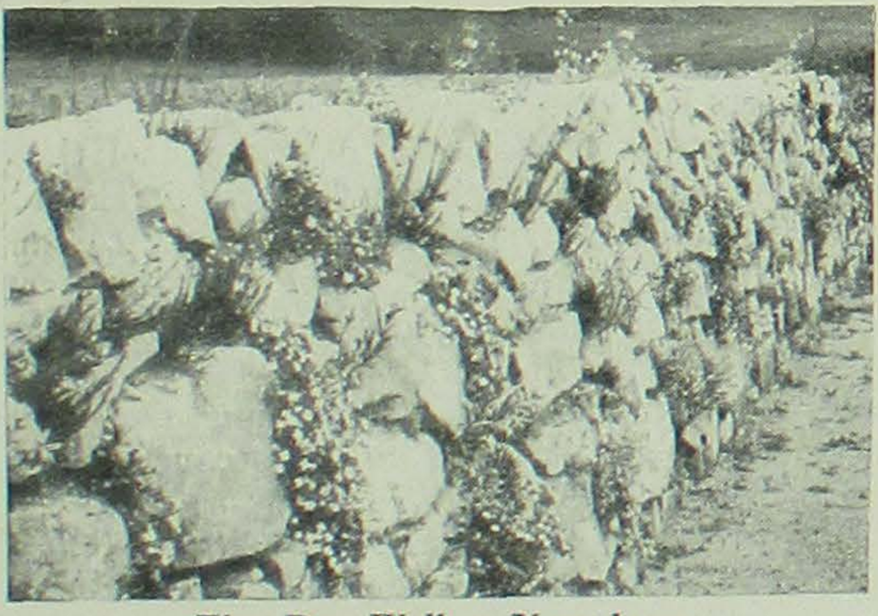
Arenaria (Sandwort). — There are some beautiful low-growing or creeping plants among the Sandworts which have white flowers. Arenaria balearica covers the face of shady rocks with delicate tracery of leaf and tiny white flowers, if planted at the foot in light loamy soil, but it must be in shade. Arenaria montana is the finest of all, having fairly large white flowers; it needs well-drained sandy loam and a sunny spot. Arenaria



Building a Dry Wall of Stone and Soil

caespitosa forms a green moss-like cushion which becomes studded with small white flowers in early summer; it is easily grown in ordinary soil.

Aubrietia (Rock Cress).—The Aubrietias give brilliant colour to the rock garden in spring, and there are now many



The Dry Wall a Year later

beautiful varieties from which to choose. Dr. Mules, purple; Fire King, crimson; Bridesmaid, lilac pink; Leitchlinii, rose pink; and Pritchard's A1, violet purple, are some of the best. If planted in well-drained soil they soon spread, forming carpets and drifts of colour. They never look better than when draping a rock face or tumbling in cascades of colour from the chinks of a wall. It is far better to raise mounds of soil on which to plant them than to put them on flat ground, where they are not seen to the best advantage.

Campanula (Bellflower).—The rock garden Bellflowers are especially welcome, for most of them come into bloom late in June and in July, when many other rock garden flowers have lost their charm. But they are valued also for their own beauty; the leafy, spreading tufts of the smaller kinds are particularly attractive when crowned with a profusion of bell-like blossom in white or some shade of blue. They like well-drained soil composed of loam, leafmould and sand, and may be planted either in a sunny or partially shaded spot. Some to be especially recommended to the amateur are: carpatica, vigorous, with large saucer-shaped flowers, in blue or white; G. F. Wilson, a favourite sort, with drooping, purple-coloured bells; garganica, with light blue flowers, less rounded in outline than usual; Hostii, a glorified form of the Common Harebell of our meadows; muralis, with purplish-blue flowers in great profusion; and pusilla, one of the loveliest of all, having small bell-like flowers in blue or white.

Cerastium (Snow in Summer).—The grey leaves and masses of white flowers of the common Cerastium tomentosum are familiar in almost every garden. This is one of the weeds of the rock garden, and grows so rapidly that it should only be planted on the outskirts, where it is not likely to encroach on choicer plants. But it is so satisfactory that the amateur may well include it in his initial collection. Cerastium Biebersteinii is perhaps the best of all.

Cotula.—This plant is worth mentioning, not on account of any special beauty attaching to it, but because it is useful for filling chinks between paving stones, and for planting along the margin of the rock garden. It may be trodden upon without any harm being done. The flowers are insignificant, but the somewhat fern-like foliage is pleasant.

Daphne.—The sweet-scented Daphne cneorum (Garland

Flower), which forms a low-growing, almost creeping shrub, and bears bunches of fragrant, rose-coloured blooms in April and May, ought certainly to be grown by amateurs. It is not difficult if planted in peat in a sunny spot, and if, as the branches grow, they are pegged down to the ground or pressed down by means of stones.

Dianthus (Pink).—The Pinks are really indispensable plants for the rock garden; their tufts of grey or green leaves are pleasant to look upon even in winter, while when in full bloom in June they are altogether delightful. Most Pinks are quite happy in light, well-drained, gritty or sandy soil among the rocks, and if thus planted they increase in beauty and size from year to year. A few to begin with are arenarius, white; caesius, rose-pink; deltoides, rose-pink; plumarius (garden Pink) in variety; and superbus, with pink or rose-coloured, fringed flowers.

A Beautiful little Bellflower (Campanula pusilla), suitable for the Rockery or for use as an edging

Erinus alpinus is an attractive little plant that looks especially well when planted among chinks in the rockwork, so that it trails down between the rocks in drifts of purplish bloom. It needs well-drained, gritty soil and a sunny or only slightly shaded place.

Erysimum (Fairy Wallflower).—The commonest is Erysimum rupestre, not perhaps a very choice plant, but one that is quite showy when covered in yellow blossom, as it invariably is each spring. It is of the easiest cultivation in well-drained soil, and looks best when placed high up on the rockery, where the mass of bloom is conspicuous.

Geranium.—Among the true Geraniums, the hardy kinds, there are several very pretty flowers. They need gritty soil and a sunny place. Some of them—such, for example, as Endressi, having rose pink blooms; and ibericum, purple blue—are vigorous and soon form large tufts. Among the smaller sorts sanguineum, purplish red; and argenteum, grey leaves and pink and white flowers, are to be recommended.

Gypsophila.—The Gypsophilas grown in the rock garden are very different plants from the well-known border perennial. They are of low growth, and soon form delightful masses of leaf, and in due season blossom. The best of all are Gypsophila repens and its variety rosea, which have grey-green leaves, and in early summer are smothered in pale pink and rose pink blossom respectively. Gypsophila cerastioides, bearing pink and white blossom in May, is also attractive. All thrive in well-drained loamy soil.

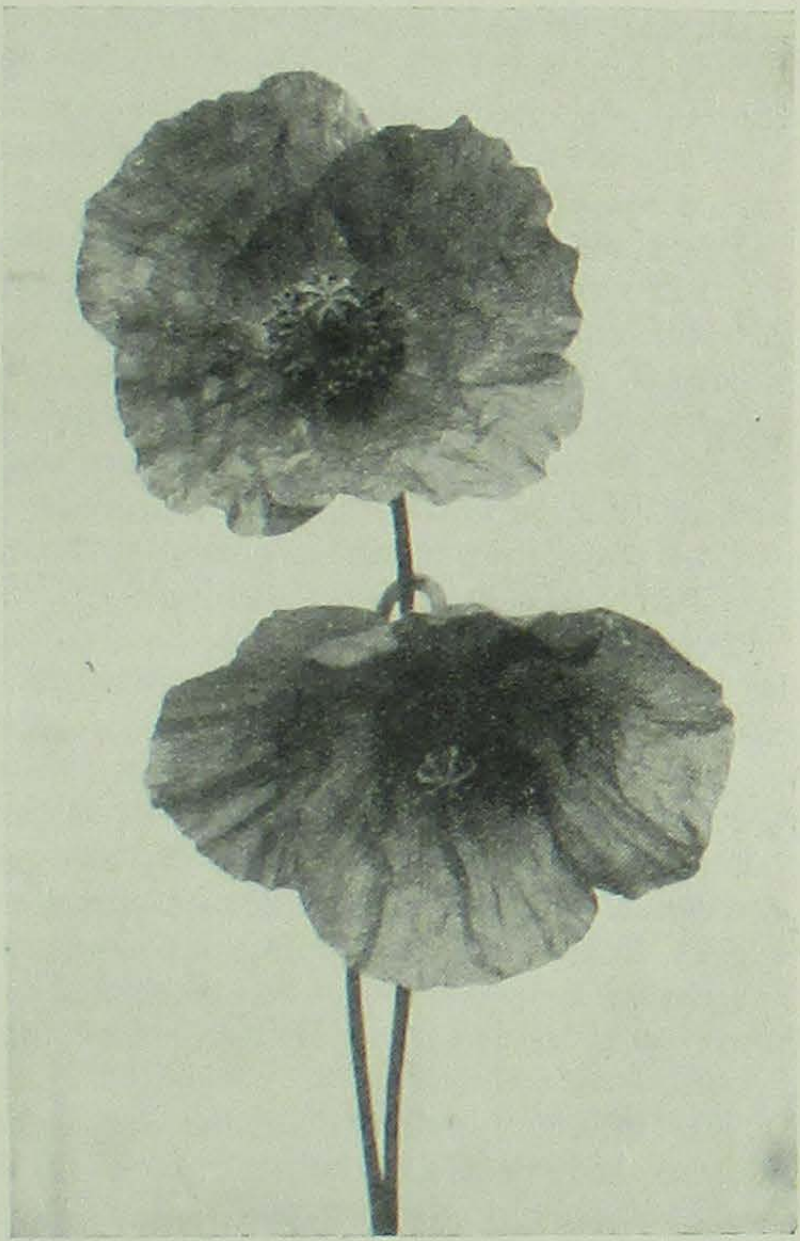
Helianthemum (Sun Rose).—These low shrubs produce an abundance of blossom in June, but they spread quickly and ought not to be planted near precious plants. They look well when crowning boulders at the top of the rock garden, or they form a beautiful edging if planted near the margin of the walk. They must have a sunny spot and light soil. There are many named varieties of the common Sun Rose (Helianthemum vulgare), of brilliant colours, from white to crimson and pale yellow to orange.

Iberis (Evergreen Candytuft).—Few flowers surpass in beauty the Evergreen Candytuft when, in April and May, its dark green leafage is smothered in small spires of white blossom. The flowers are so numerous that the leaves are often hidden. For planting behind a rock so that the flowers may hang over its face, or for forming a margin to the rock garden, they are indispensable. The commonest, and perhaps the best, sort is Iberis sempervirens; others are correaefolia with larger flowers, and gibraltarica, in which they are tinged with lilac. A compact variety known as Little Gem is very pretty, and takes up comparatively little room. The Evergreen Candytufts thrive in ordinary soil.

Leontopodium (Edelweiss).—It has been pointed out so often that the Edelweiss is quite easily grown, that by now every amateur gardener must surely be aware of the fact. All it needs is sunshine and gritty or stony soil in a rock crevice. Leontopodium alpinum is its botanical name. The grey, woolly flower heads cannot be described as showy, though they possess an especial attraction.

Linaria (Toadflax).—The creeping Toadflax (Linaria alpina) is a pretty little plant with greyish leaves and purple, orange-centred flowers; it thrives in a sunny spot and in light, gritty soil. It often fails to survive the winter, but is readily raised from seed sown in autumn in a frame, or in spring in the greenhouse. The Ivy-leaved Toadflax (Linaria Cymbalaria), which is a native of this country, is worth planting in rock crevices, especially in shade; its lilac-tinted flowers are very pretty.

Linum (Flax).—The blue Flaxes, Linum perenne and narbonense, are charming flowers for the rock garden:



An Apricot-coloured Poppy (Papaver rupifragum) though the individual blooms are fleeting, the plants remain in blossom almost throughout the summer. They grow about 18 inches high, and are of slender, graceful growth. Two yellow Flaxes are also to be recommended, namely Linum arboreum and flavum. All are easily grown in light soil in sunshine.

Lithospermum (Gromwell).—Perhaps the finest of all blue-flowered rock garden plants is Lithospermum prostratum. It has dark green evergreen foliage, is of low growth, and in spring bears flowers of the most intense blue. A variety called Heavenly Blue has blooms of brighter blue. These plants need to be planted in peat in a sunny or partly shaded and well-drained position.

Oxalis (Wood Sorrel).—The finest of the Wood Sorrels suitable for the rock garden is Oxalis enneaphylla. It has beautiful grey-green leaves, and early in summer bears charming pale rose-coloured flowers. It needs a half-shady spot and well-drained soil of peat and sandy loam.

Papaver (Poppy).—Among the Poppies there are at least two that ought to be in every rock garden, the Alpine Poppy (Papaver alpinum) and Papaver rupifragum. The former is a miniature plant, bearing flowers in white, yellow, or orange, while the latter, which is about 18 inches high when in bloom, has apricot-coloured flowers. Both are easily raised from seed sown in June to flower the following year, or the Alpine Poppy may be sown in warmth in spring to bloom the same season. They thrive in a sunny spot and light soil.

Primula (Primrose).—So far as the beginner is concerned, the rock garden Primulas may be divided into those which are true rock plants, and others needing a cool, moist spot in loamy or peaty soil. A few beautiful rock-loving Primulas are Auricula, golden-yellow flowers and grey leaves ; Clusiana, carmine-violet ; glaucescens, lilac-carmine ; hirsuta, rose-purple ; and viscosa, pale violet. All these thrive in rock crevices facing east or north-east in loamy soil containing limestone or stones. Primula marginata, too, ought to be mentioned ; this succeeds in a sunny rock crevice in loam with which limestone and grit are mixed.

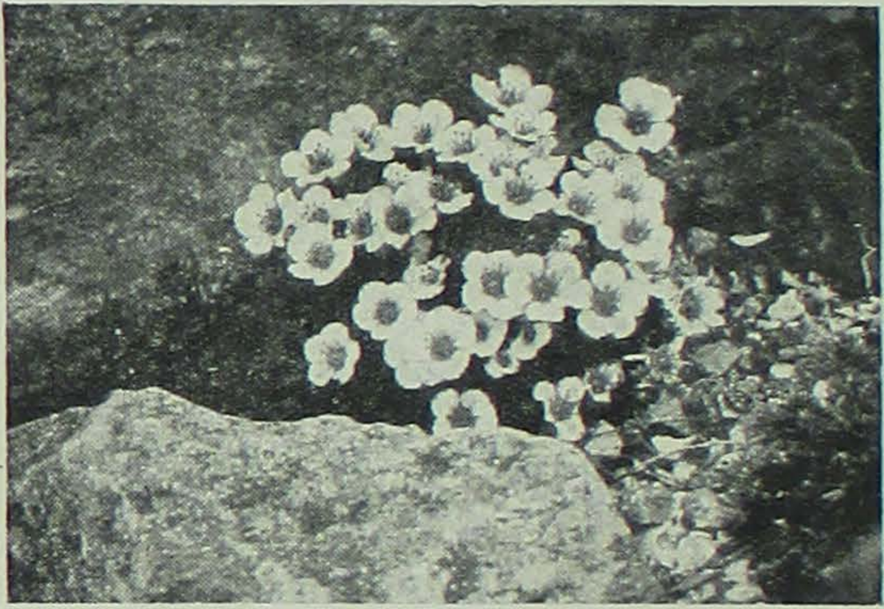
The moisture-loving Primulas are, generally, of far more vigorous growth than the true rock Primulas, and are best planted in partial shade, in soil that will not dry readily, as, for example, loam and peat in mixture. Primulas, as a rule, need cool, moist positions. Some of the best of the moisture-loving sorts are: Beesiana, bearing tall stems of purplish flowers; Bulleyana, orange-red and buff, vigorous; denticulata, with rounded heads of lilac-coloured bloom, vigorous; frondosa, of low growth, bearing bunches of small, rose-lilac flowers; japonica, very vigorous, with tall stems of flowers which may vary from white to crimson in colour; rosea, a low-growing plant with bright rose bloom; and sikkimensis, with bunches of drooping, light yellow flowers on tall stems.

Ramondia.—This is a plant of curious growth; it forms a flat rosette of rough, dark green evergreen leaves, and in early summer bears pretty, violet-blue flowers with orange-coloured centre. It can only be grown successfully when planted between rock crevices facing north, the leaves lying flat against the rock face. Peat soil is necessary.

Saponaria (Soapwort).—At least one of the Soapworts (Saponaria ocymoides) is strongly to be recommended to the amateur rock gardener, both on account of its beauty and the ease with which it is grown. It spreads quickly, and in the course of a season forms a low, spreading mass that looks especially fine if trailing between rocks. In April and May the plant becomes smothered in rose-pink blossom to such an extent that the leaves are hidden. It is necessary to cut off the seed pods, otherwise the plant may die. Gritty soil and a sunny position meet its needs.

Saxifraga (Rockfoil).—The Saxifrages are divided by the botanist into several groups, the most useful of which to the beginner are those familiarly known as Mossy and Silvery Saxifrages. The former make spreading cushions of evergreen foliage, which are attractive even in winter, but especially in spring, when covered with blossoms in white, pink, or crimson. Some of the mossy Saxifrages are more compact than others, and they are, I think, greatly to be preferred. A few of the best are hypnoides, muscoides, and its variety atropurpurea, Guildford Seedling, Bathoniensis (one of the finest crimson varieties), and Kingi, which forms a particularly close and moss-like carpet, although it does not bloom freely. All the Mossy Saxifrages like a little shade, and ought to be planted in a position facing west or even north-west, in loamy soil, with which a little leaf-mould and sand have been mixed. They are not, however, fastidious as to soil, and will even thrive in fairly heavy loam, although, unless it is well drained, they are apt to become "patchy" in winter. The Mossy Saxifrages never look better, in common with most other rock plants, than when planted on a slope.

The Silvery Saxifrages are distinguished by compact tufts of silvery grey leaves that are hard to the touch, and they also are attractive when not in bloom. The flowers appear in early summer; they are borne in panicles or branched inflorescences on stalks usually not less than 12 inches high, though often much taller, and are generally white, pink, rose, or pale yellow. The Silvery Saxifrages need well-drained, gritty soil, and should be planted among rocks; in such positions they spread into cushions of beautiful foliage, and when these are crowned by graceful panicles of blossom the effect is charming. A few sorts to be recommended are Saxifraga Aizoon and its varieties balcana and flavescens; cochlearis and its variety minor; Cotyledon; Hostii; lingulata and its variety lantoscana.



An Early-flowering Rockfoil (Saxifraga Burseriana)

There are some delightful little plants among the early-flowering Tufted Saxifrages; these form small tufts of green or grey leaves, blossom in early spring, and need well-drained, gritty soil and a fairly cool spot, such, for example, as one facing south-east. A few of these are: apiculata, yellow: Burseriana, white: Boydii, pale yellow; sancta, yellow.

Saxifraga oppositifolia, which belongs to another section of this group, has slender, creeping stems and bears comparatively large rose-purple blossoms in early spring. It must be in a cool, partially-shaded spot in a soil compost of loam, leaf mould, sand and grit.

Trillium (Wood Lily).—For a cool, shady spot there is nothing more charming than the Wood Lily of North America (Trillium grandiflorum), which in spring bears a solitary large white flower at the top of each of its leafy stems. In peat soil in shade it is quite easy to grow.

Veronica (Speedwell).—The finest of the rock garden Veronicas for the amateur is rupestris, a low plant which bears a profusion of intense blue blossom in May and June, forming a carpet of rich colour. It needs only sunshine and well-drained soil.

CHAPTER V

Beds of Summer Flowers

An old-fashioned practice, yet one still largely followed, is that of filling flower beds with tender, summer-flowering plants, which will be taken up again when autumn sets in. Summer bedding, as this is termed, has both advantages and disadvantages. It is to some extent commendable, because it enables one to have a distinct change of flowers in spring and summer, and allows one to make an excellent and typical display of both. Such bulbs as Daffodil, Tulip and Hyacinth, together with familiar spring flowers like Polyanthus, Arabis, Iberis, Primrose, Wallflower, Dwarf Phlox and Aubrietia, are planted in autumn when the summer plants have served their purpose, and they in turn are superseded in June by the Geraniums, Lobelias, and others equally familiar. The disadvantage of this system lies in the monotonous aspect of the flower beds throughout the summer; the plants are much the same day after day, and the variety of flowers and foliage, which adds so greatly to the charm of the ordinary mixed border, is wanting. Another disadvantage, which, however, might easily be overcome, is in the limited selection of plants made use of. There are plenty from which to choose, even for summer bedding, but most amateurs limit their choice to half a dozen. In this kind of gardening, which depends for its attractiveness upon the colour display, care should be taken to arrange striking combinations. The commonest colour scheme, and perhaps the least beautiful of all, consists of scarlet Geranium, Yellow Calceolaria, and blue Lobelia. As a rule, the more one mixes different plants the less satisfactory is the result, unless the object is to form a distinct pattern. Numerous illustrations are given in this chapter of designs suited to the planting of summer flowers, some simple, others elaborate, and the reader may make his choice. There is no doubt about the brilliance of a bed planted skilfully with tender plants, and those who

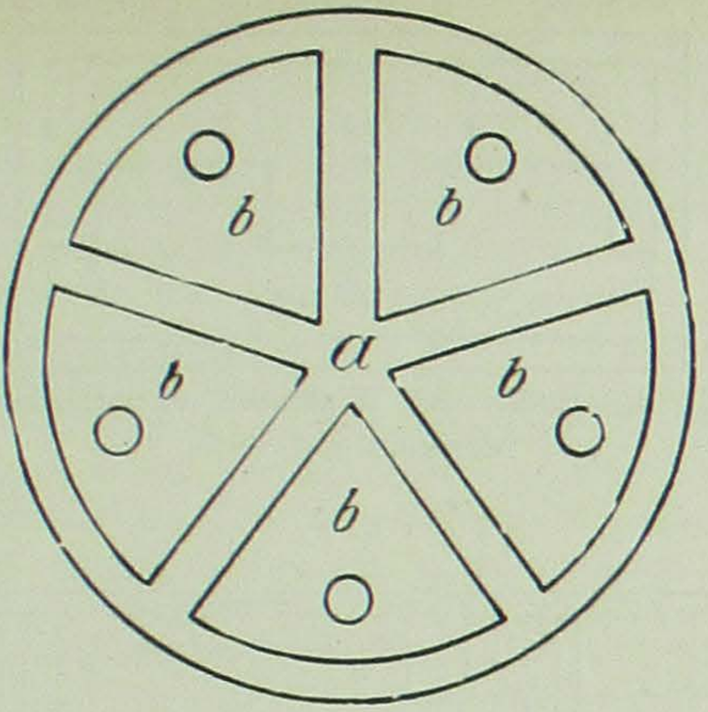


Fig. 1.—For Stocks and Asters

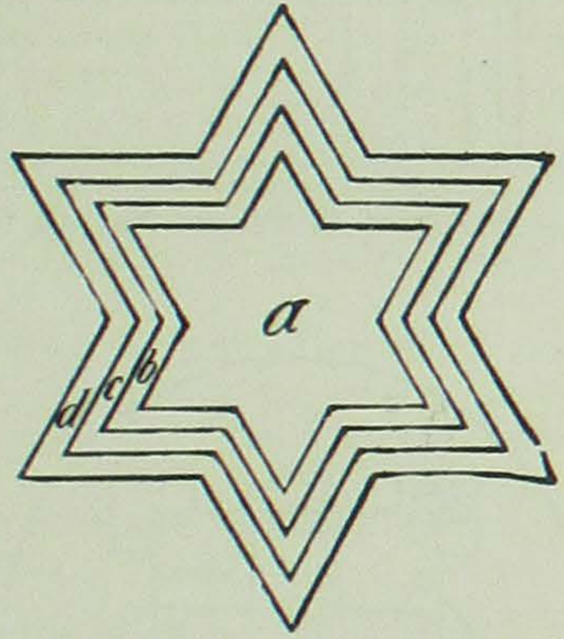


Fig. 2.—Six-pointed Star Bed

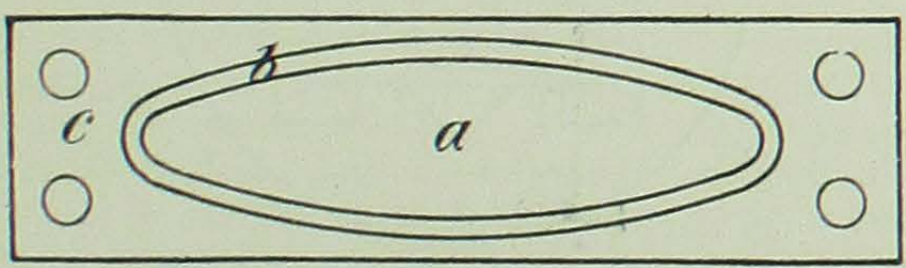


Fig. 3.—Oval in Long Bed

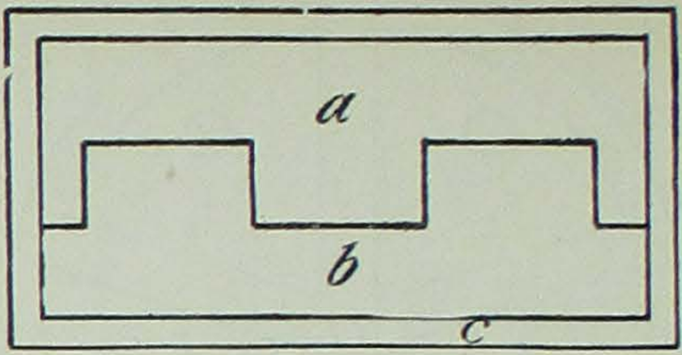


Fig. 4.—Looks well if planted with Begonia, Marigold and Viola

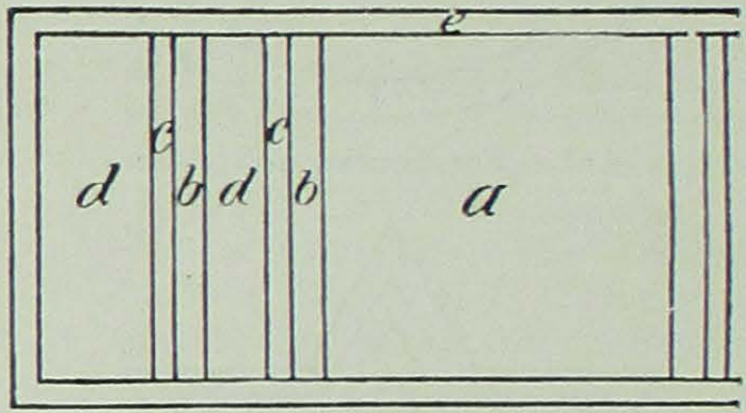


Fig. 5.—A Bed of Broad and Narrow Stripes

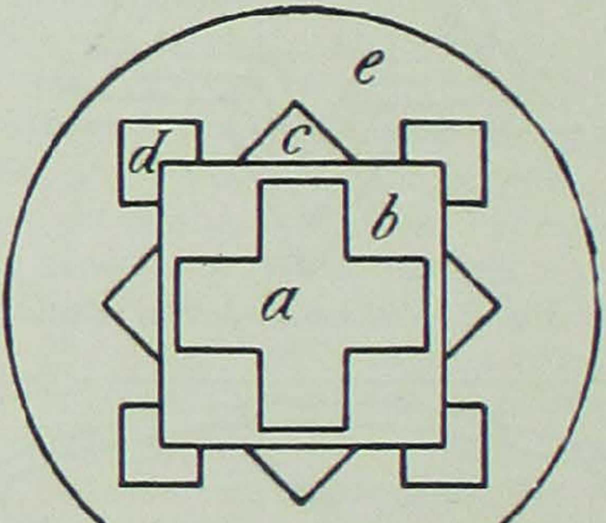


Fig. 6.—Design for National Colours

practise summer bedding have plenty of opportunity of exercising their skill in creating colour schemes.

Simple Bedding Out.—Bedding out may be simple according to the design, or through the character or number of different plants employed. In public parks and private grounds the simplest arrangements are often the most admired.

Only two kinds of plants and some miniature gold shrubs are needed for the bed shown in Fig. 1, so these may be either two shades of one colour or a strong contrast. For the former combination use salmon Silene pendula compacta Bijou or Begonia semperflorens Salmon Queen for A, and Nasturtium Rosy Scarlet, which has silver variegated foliage, for B, with dot plants of Love-lies-Bleeding or Beet if the gold shrubs are not in stock. For the contrasting filling use white Stocks for A, carmine Stocks or Dwarf Asters for B. With these the shrubs will look perfect, or, failing them, clumps of Pyrethrum aureum may be chosen, and allowed to grow tall, their buds being removed.

The Six-Pointed Star Bed is always a popular one, but the simplest filling suits it best, and Fig. 2 shows the effect produced by making only a triple edging. A may be purple Stocks, B mauve Violas, C gold Violas, D white Violas. Another pretty scheme is this one: A, gold Calceolarias; B, Lobelia Royal Purple; C, Lobelia Barnard's Perpetual; D, white Lobelia.

The angular aspect of a long bed, to which many eyes object, is quite taken off by drawing a long oval in the centre as shown by Fig. 3. This is another of the designs that can be repeated at intervals all down a border, in which case it serves splendidly to exhibit specially different varieties of two plants, such as Carnations and Violas, Asters and Begonias, Scabious and Stocks, or, if on a large scale, Dahlias and Dwarf Chrysanthemums. For a bed scarlet double Begonias may fill A, edged by Pyrethrum aureum selaginoides at B, the ground C can be pale blue Violas, with scarlet double Geraniums for dot plants. A pattern partition down the centre gives all the effect to bed Fig. 4. It may be carried out thus: A, white single Begonias; B, dwarf French Marigold Legion of Honour; C, violet Violas. Broad and narrow stripes, most easy to plant, draw out the design of Fig. 5, which looks charming when planted with Giant Mignonette at A, scarlet Nasturtiums at B, white dwarf Candytuft at C, deep blue Violas at D, edge E of pale blue Violas.

Original Flower Beds.—The round (Fig. 6) affords scope for a display of national colours. If the cross A is of silver foliage, Pinks, Arabis, or Sedum album, the background B of scarlet Nasturtium, the points C of blue Pansies, the points D of gold Violas, and the carpet E of miniature white Alyssum, the result will be sure to please. For a smaller bed it would be better to use blue Lobelia for C, gold Stonecrop for D, and white Lobelia for E, it being so essential to keep the pattern very clear.

National colours again have been specially provided for by Fig. 7, which can be planted thus: A, scarlet Begonia semperflorens; B, white Lobelia; C, blue Lobelia; D, Pyrethrum aureum; E, any dark-leaved scarlet Tom Thumb Nasturtium; F, pale blue, or the deeper blue, Lobelia, unless miniature Sweet Alyssum is preferred. If red, white and blue are not to be employed, the prettiest way to plant this bed is as a shaded scheme: A, maroon Nasturtium; B, crimson Nasturtium; C, dull rose Nasturtium; D, Pyrethrum aureum; E, Begonia semperflorens rosea; F, black bedding Pansies.

Four colours only are needed for Fig. 8, and one is best given by a foliage plant: A, Great Crimson Beet; B, Calendula Orange Prince; C, purple Violas; D, mauve Violas, are harmonious. A paler filling would be: A, striped Japanese Maize, B, lemon French Marigolds; C, salmon Begonias; D, white Violetta, which has a cream effect by reason of the gold eye.

A long narrow bed is shown in Fig. 9, and this is an admirable design to continue along a border of any length, varying the varieties of the groups of centre plants. A showy choice for the bed would be: A, willow-leaved Beet; B, white Aster; C, rose Aster; D, yellow Viola; E, Silene pendula compacta rosea. Another idea is to use only foliage plants in the centre, thus: A, Japanese Maize; B, Beet; C, Cineraria maritima; D, Liliput scarlet Nasturtium; E, blue Lobelia.

Beautifying Plain Flower Beds.—The owner of plain beds can make them as effective as those of elaborate shape by planting according to patterns. Great skill is not demanded for this, but accurate measurement is absolutely necessary even for the simplest device. A design made with rounds, six in number, and an edging belt, is shown in Fig. 10, for which I will suggest two different fillings, as they will demonstrate how a bed can be planted for a strong effect or a delicate one. To please

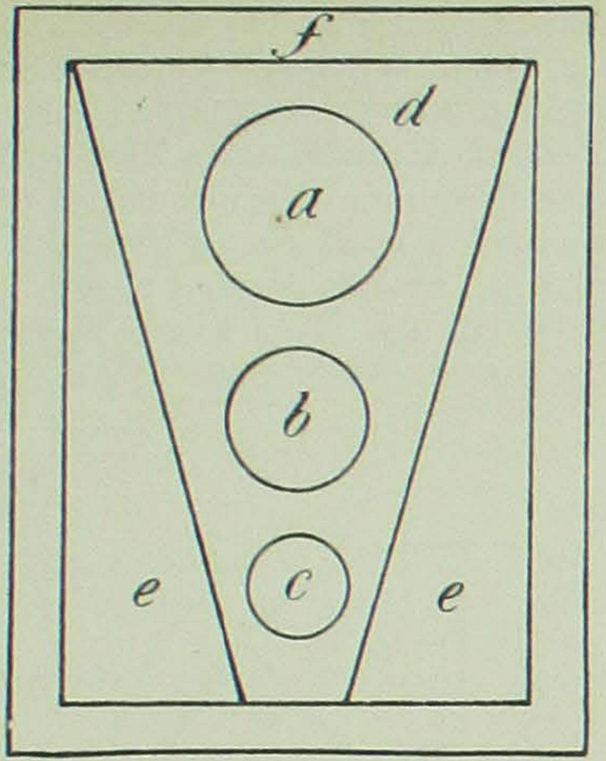


Fig. 7.—Another Scheme for Red, White and Blue

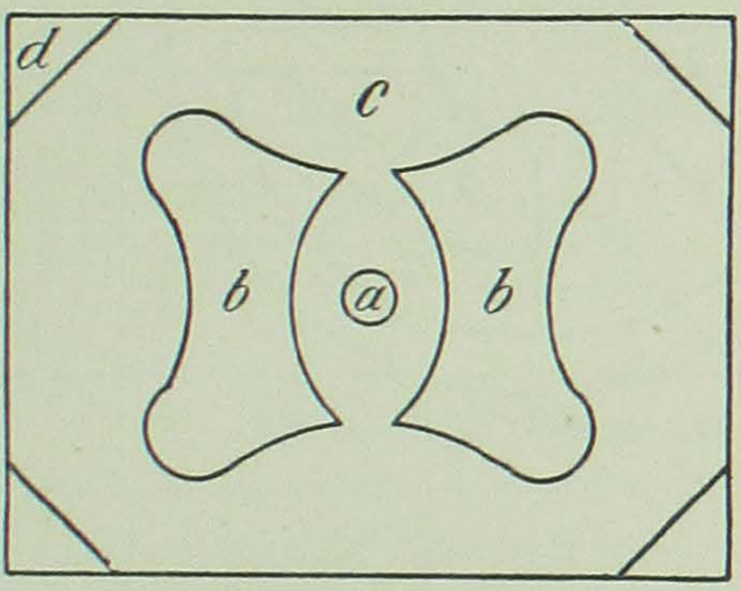


Fig. 8.—For Four Colours

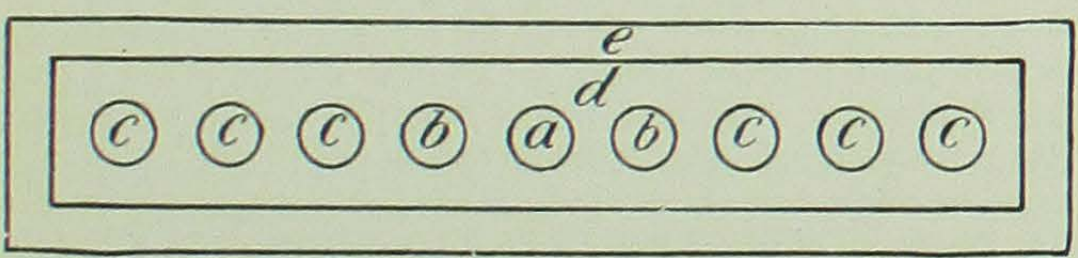


Fig. 9.—A Long Narrow Bed

lovers of colour contrast orange African Marigolds may be employed at A, lemon African Marigolds for B, pale blue Violas at C, Miniature Sweet Alyssum at D, and scarlet Liliput Nasturtiums at E, the vermilion of which is but the orange of the Marigold deepened a few shades. To gratify lovers of subdued harmonies the bed can well be planted thus: A, purple Asters; B, Chilian Beet; C, the Ice Plant Mesembryanthemum crystallinum; D, Tom Thumb Nasturtium Terra Cotta; E, mauve Violas or pigmy Asters. The result would be only a little less soft in tone if the pink Viola William Neil were used instead of the Nasturtium.

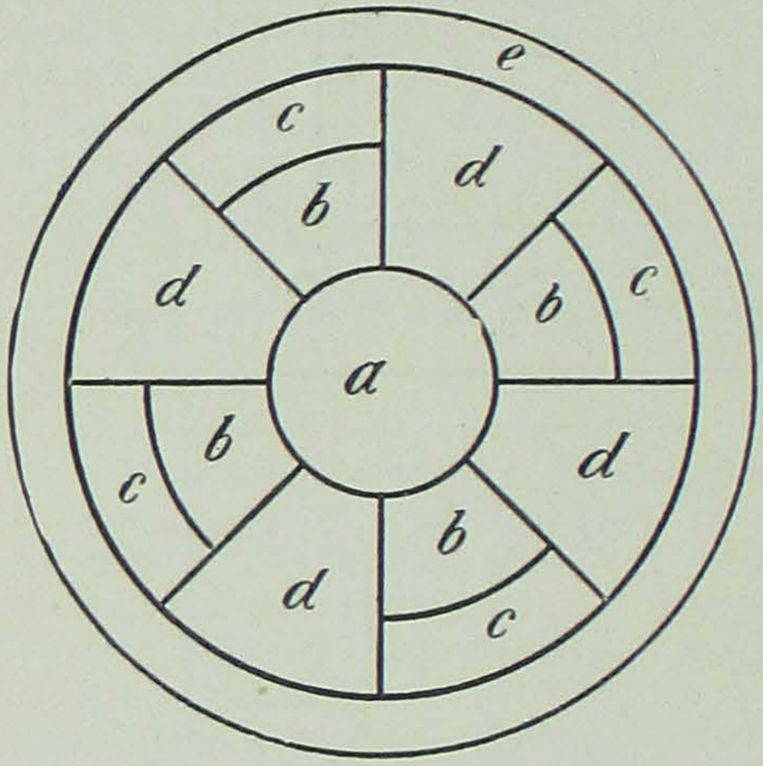


Fig. 12.—A Beautiful Round Bed

A remarkably effective design is that of Fig. 11. It is easily obtainable, and I suggest the following filling: A, brown Calceolaria; B, cream yellow Asters; C, scarlet Begonias; D, pale blue Asters; E, bronze bedding Pansies; F, scarlet Nasturtiums; G, gold Violas; H, pale blue Violas, to match the Asters at D; I, cream Violas.

A beautiful round bed is assured if the design Fig. 12 is planted with golden Calceolarias at A; scarlet Nasturtium, B; blue Lobelia, C; white Violas, D; yellow Violas, E. An artistic filling would be A, crimson-foliaged Beet; B, scarlet Nasturtium; C, Begonia semperflorens Salmon Queen; D, Cerastium tomentosum, or Snow-in-Summer; E, Pyrethrum aureum.

A Dark or Light Bed, equally original, may be planted thus, by following the design of Fig. 13: Dark bed—A, black maroon Scabious; B, navy blue Asters; C, Nasturtium Empress

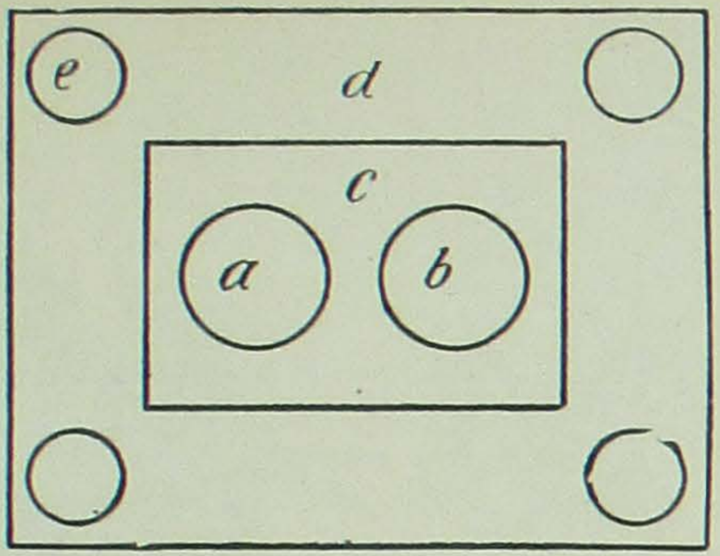


Fig. 10.—Suitable for Strong Contrasts

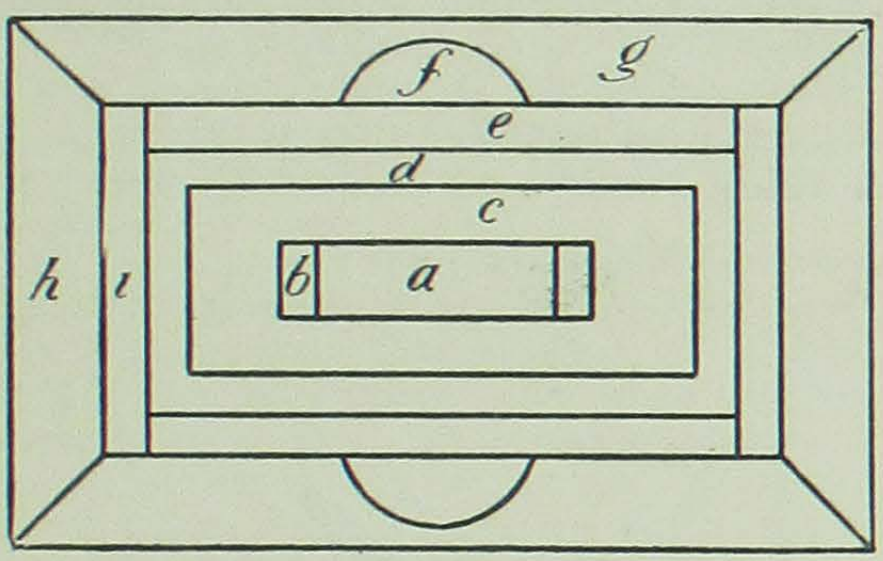


Fig. 11.—An Effective Design

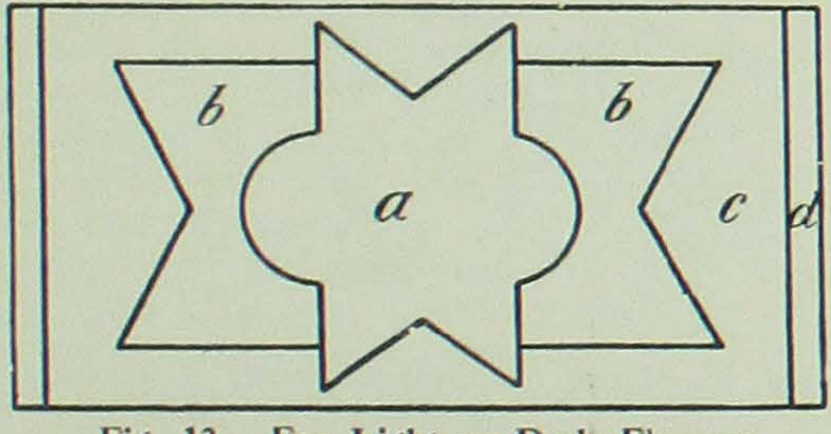


Fig. 13.—For Light or Dark Flowers

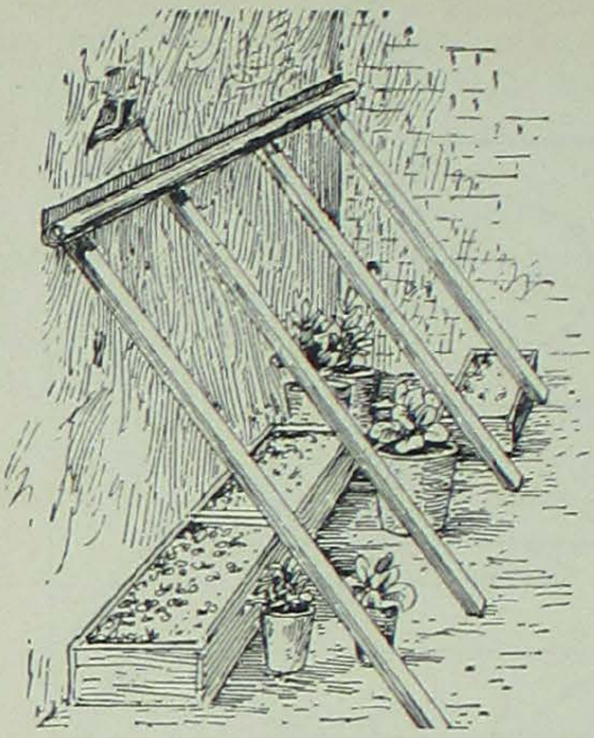


Fig. 14.—Hardening Off Bedding Plants without Frame

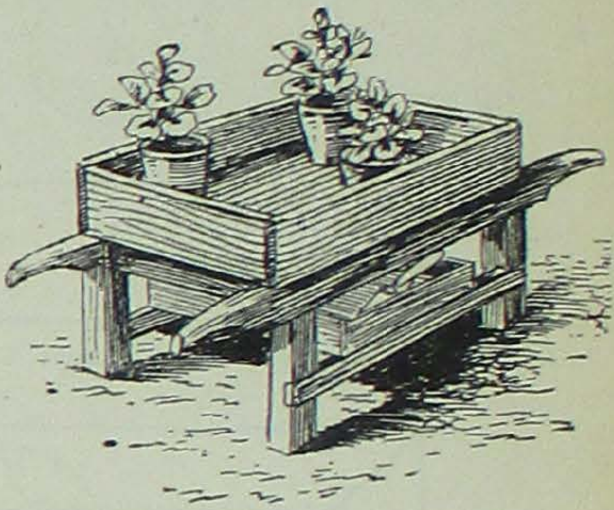


Fig. 15.—An Easily-made Plant Barrow

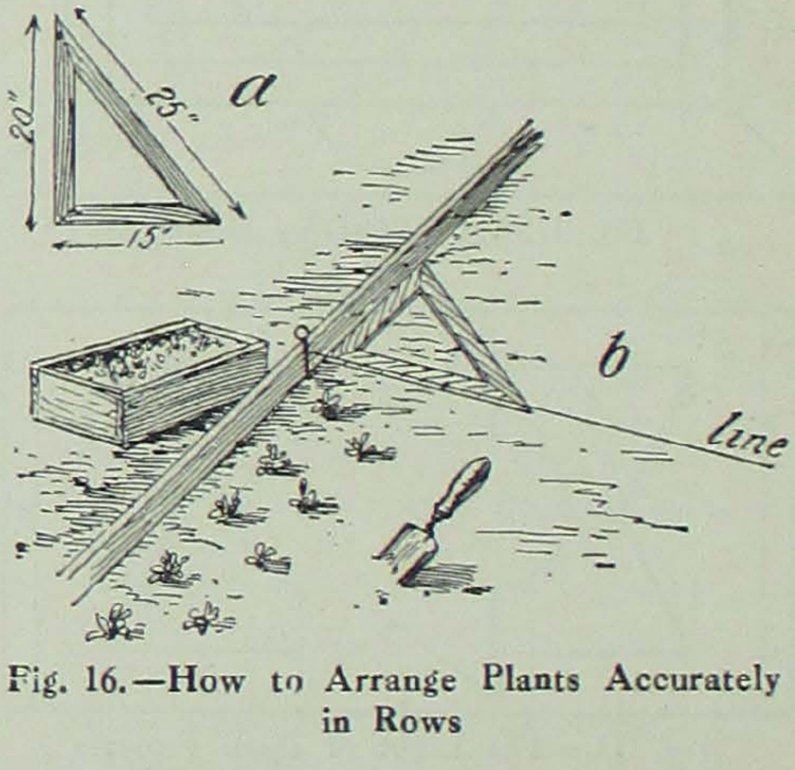


Fig. 16.—How to Arrange Plants Accurately in Rows

of India; D, black bedding Pansies. Light bed—A, white Marguerites; B, blush Stocks; C, Viola Gipsy Queen, or any other pale lilac; D, white Violetta.

Hardening Off and Planting.—Before the summer bedding commences the beds and borders should be carefully prepared by being dug over, while some well-decayed manure ought also to be incorporated. Before the time for planting arrives a definite scheme of arrangement must be decided upon; it is important also that the plants be gradually hardened off, or they will receive a check to both roots and foliage. The plants from the greenhouse are placed in a cold frame and the amount of ventilation is gradually increased day by day until the lights can be entirely removed. In cases where sufficient frame accommodation is not available, a number of stakes or lengths of wood are placed in a slanting position against a wall or fence in a sheltered corner of the garden, the plants to be hardened off being arranged underneath, so that more or less protection during the night can be provided by placing matting over the stakes.

Bedding plants in pots and boxes should be well watered the day before being planted, and again when planting is completed if the weather is sunny. The situation of the bed or border ought to be taken into consideration when deciding upon the class of plants to employ. It is useless planting fine foliage plants in positions exposed to rough winds, while moisture-loving sorts are, of course, quite out of place in hot, dry soils. Firm planting is desirable. Although overcrowding of the plants should be avoided, it is a mistake to plant so far apart that at the end of the season the plants do not reach each other. Many bedding plants, of course, require stakes of some kind or other, and these must be provided in good time, so that growth does not become distorted through want of support.

When bedding out in straight lines and geometrical figures and set patterns, it is important that the plants be accurately set out or the effect will be marred. A line should be fixed for all straight rows of plants, whilst for marking out right angles or square corners there is nothing more convenient and handy than what is known as a square, a contrivance which can be made by anyone. All that is necessary is to nail together three lengths of wood, having perfectly straight edges, in the form of a triangle, so that the lengths of the sides are in the ratio of

3, 4, and 5. The angle thus formed by the two shorter sides will be 90°, or a right angle. Two convenient-sized squares are those having sides 15, 20, and 25 inches long and 18, 24, and 30 inches long.

Fig. 14 shows one of the best ways of hardening off bedding plants when sufficient frame accommodation is not available. Fig. 15 illustrates an easily made plant barrow which will be found very handy at bedding-out time. Fig. 16 shows at *a* how to make a square, so that when necessary plants in rows can be accurately arranged at right angles to other rows or to the front of the border. The method of marking out the right angle is show at *b*, the garden line being fixed linable with the edge of the square.

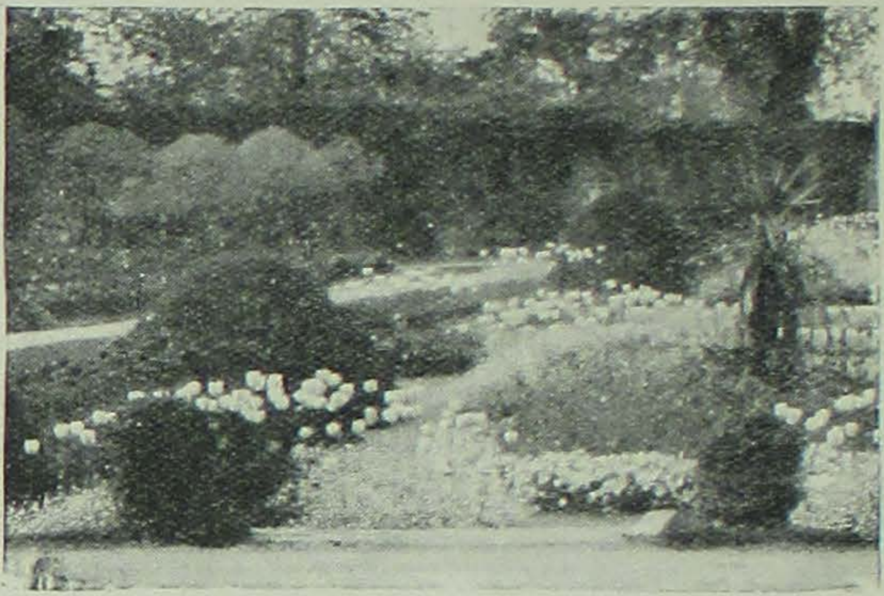
Increasing Bedding Plants.—Most of the plants commonly used are increased by means of cuttings taken in August and September, and inserted in pots or boxes of sandy soil placed in a closed frame for two or three weeks. Geranium cuttings need air and very little water at the root. During winter the rooted cuttings are kept in a greenhouse or frame having a temperature of about 50°. In spring the tops of the young plants of many kinds can be used as further cuttings if necessary. Lobelia is easily raised from seed sown in warmth in February.

CHAPTER VI

Flowers of Spring

No flowers are more welcome than those of spring—the Wallflower, Polyanthus, Primrose, Arabis, Aubrietia, Alyssum, Iberis, and the familiar spring-flowering bulbs, such, for example, as Daffodil, Tulip, and Hyacinth. They especially appeal to the amateur because they are hardy and easily grown, and because it is possible to create some charming colour schemes with them. What, for example, can be more attractive than a flower bed planted with the white Evergreen Candytuft (Iberis sempervirens) and one of the brightly coloured Aubrietias, such as Dr. Mules or Pritchard's A1, purple; Fire King, crimson, or Bridesmaid, pink? White Mossy Saxifrage or double White Arabis can be used as a groundwork for many brilliantly-coloured Tulips, and the planter may arrange colour schemes to his heart's content. The dwarf Phloxes, subulata, rose pink, and Newry Gem, pale mauve, too, look especially well if planted among Evergreen Candytuft or white Mossy Saxifrage. With Wallflowers and Tulips one may arrange many showy combinations. There are Wallflowers in bright yellow, pale yellow, orange, dark red, plum colour and other shades, and as for Tulips they are obtainable in almost every colour, except blue.

Colour Schemes.—How striking, for example, are the following associations: Yellow Wallflower with a dark Tulip such as La Tulipe Noire, the rose-red Pride of Haarlem, the pale lilac variety Lantern, or the pink Tulip Clara Butt; dark red Wallflower among the yellow Tulip H. G. Moon or gesneriana spathulata; primrose-coloured Wallflower and pale mauve Tulip the Rev. H. Ewbank; and so one might go on indefinitely. With Hyacinths alone one can arrange innumerable colour displays; they look best when a bed is planted in blocks or sections of distinct colours. A particularly brilliant, though somewhat gaudy, bed may be planted with the yellow Alyssum and the scarlet and yellow Tulip Keizer's kroon, or with the large



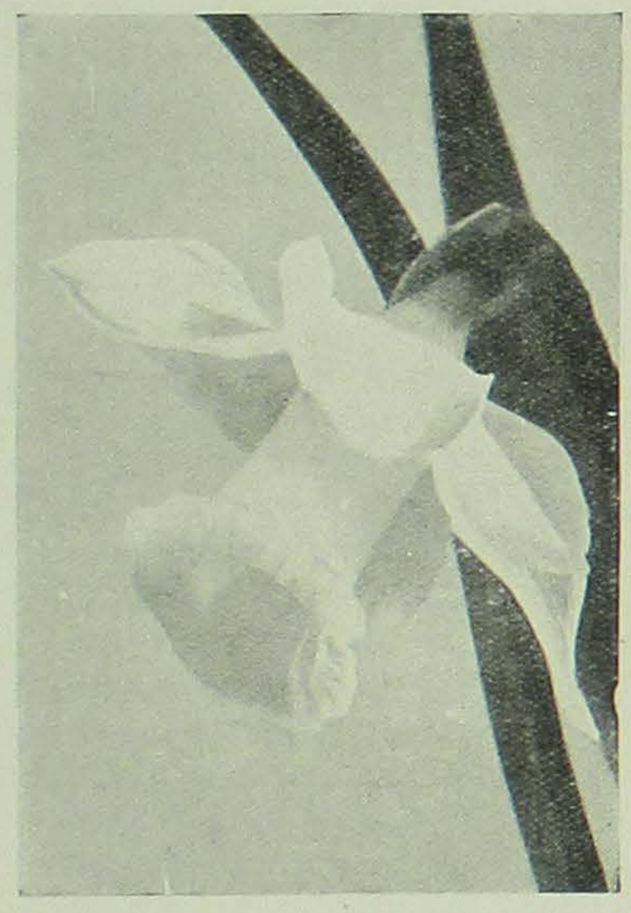
Darwin Tulips and Forget-me-nots

white Tulip White Swan. Violas, Pansies, Primroses and Polyanthus, as a rule, look best when each is planted to fill a bed; they do not mix well with other flowers, except in the case of self-coloured varieties of Tufted Pansy or Viola. A bed of mixed colours is rarely so attractive as one in which a few distinct colours are made use of. Neither do Daffodils and Narcissi lend

The Blue Apennine Anemone

themselves well to mixing with other flowers; they look best when filling a bed. Other flowers that are often employed for spring flower beds are Daisies, Poppy Anemones, the orange yellow annual Erysimum, and the pink Silene.

How the Flowers are Grown.—The disadvantage of spring bedding, so far as the amateur with a small garden is concerned, lies in the fact that a piece of ground must be devoted to cultivating the plants during summer, and it is often a matter of difficulty to allot any for this purpose. The only alternative is to purchase the plants in early October, and put them in the beds then. If only a few are required, this is probably the best method to adopt. However, if the necessary plot can be devoted to their cultivation, it should be done, for the work is full of interest and offers no difficulty. Wallflower, Erysimum, Pansy, Polyanthus and Primrose are raised from seed sown out-of-doors in May or June, the seedlings being transplanted when large enough, and finally planted in the beds in early autumn. Polyanthus and Primrose may also be increased by taking up the old plants when they have finished flowering, and replanting the separated portions. Aubrietia, Alyssum, Arabis, dwarf Phlox and Iberis or Evergreen Candytuft are increased by means of cuttings taken in June, and inserted in boxes of light soil placed in a frame, or in sandy soil on a shaded border and covered with a handlight.



Trumpet Daffodil Loveliness

Forget-me-nots are raised from seed, the easiest way being to take up a few roots and plant them on the reserve bed. Self-sown seedlings will soon spring up. Daisies are increased by division after flowering. The roots of Poppy Anemones are planted in September and October.

Tulips, Daffodils and Hyacinths are planted in October and early November. When the flowers are over the bulbs of Daffodil and Tulip should be taken up and replanted on a reserve plot, there to remain until the leaves have turned yellow. They are then taken up, dried and stored until autumn, the finest bulbs alone being planted in the beds; the smaller ones may be "grown on" for a year or two until they reach flowering size. Hyacinths are of no value for planting in formal beds a second year, though they are quite useful for planting out in odd corners in the garden. They continue to produce flowers, though of inferior quality to those of fresh bulbs. To obtain Violas for spring flowering the plants should be taken up when their display is over, and be divided, small pieces having roots attached being replanted on the reserve border.

CHAPTER VII

Making a Water Garden

A POND or pool adds immensely to the charm of a garden, especially during hot summer weather, when, more than at any other time, we are attracted to the garden for coolness, shade, and soft colour. Even a glimpse of water brings a sense of refreshment and relief, which is further emphasised by the characteristic rich greenery of the foliage of moisture-loving plants. But apart from these considerations, the presence of a pool or pond of water affords an opportunity of growing quite a number of charming plants that otherwise could not be placed satisfactorily. First and best of all there are the Water Lilies for the water surface, while in the moist soil alongside the margin we may plant Siberian Iris, Japanese Primroses, Globe Flower or Trollius, Royal Fern, Musk or Mimulus, Spiraea, Reeds, Sedges and ornamental Grasses, to say nothing of the gorgeous Japanese Irises, Forget-me-Nots, Loosestrife, and several others.

A tank, small pool or pond may be fed by a little stream if the garden is fortunate enough to possess one, but in most cases it is necessary to supply water from a tap, by means of a pipe, hose, or, better still, a tiny water-course leading from a tap to the tank. In the latter case it is essential that the tank should be below the level of the tap whence the water is drawn.

The pool shown in the illustration on page 65 was planned to occupy a spot in the garden at a low level, and a water-course of stones and cement conveys the supply, and forms a pleasing feature of the garden, the margin being planted with moisture-loving plants. A small pool or pond such as this may even be filled by hand, or supplied from a tank which catches the rainfall from the roof. It is not essential that there should be a constant flow of water. The one shown in the photograph is about 3 feet deep at the deepest part, rising to about 2½ feet, the shallower portion being designed to suit some of the smaller Water Lilies, such as N. Laydekeri rosea.

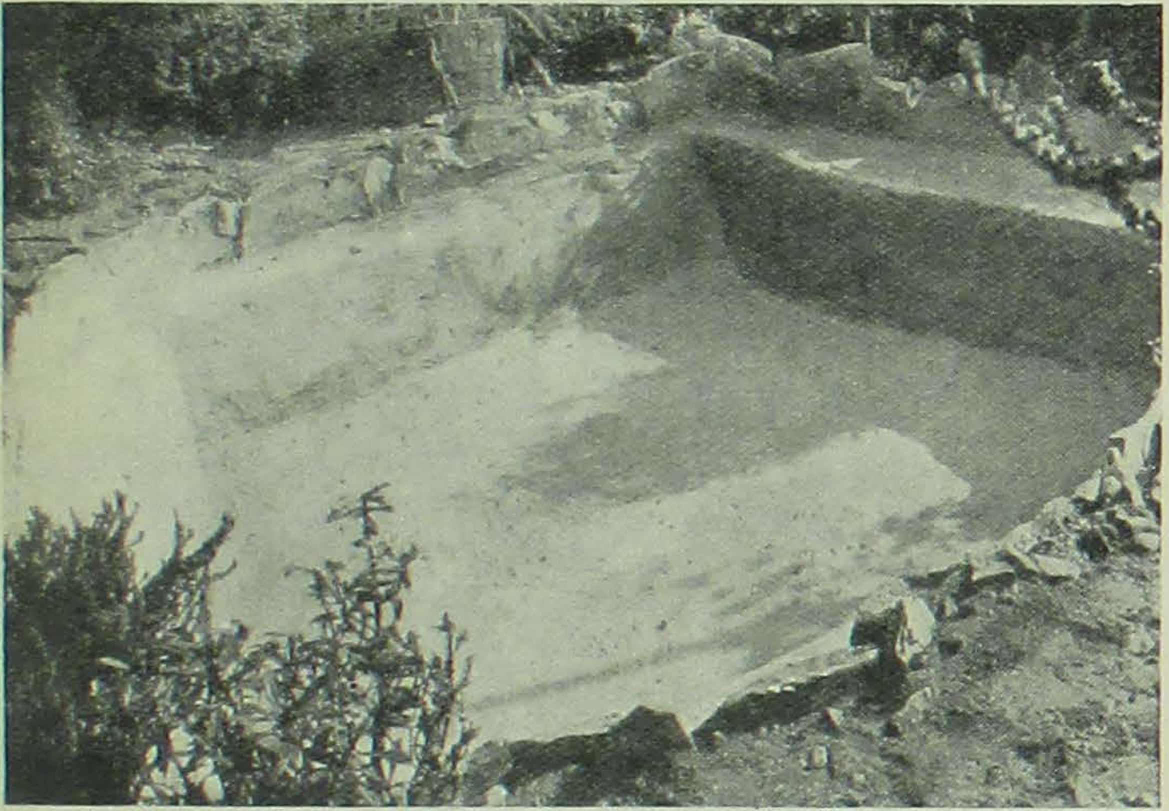
Details of Work.—An excavation was made deep enough to allow for the concrete and other material, which account for about 6 inches more in depth. In the first place, the bottom of this excavation was trodden and beaten down firmly. (Where clay is at hand some of this well puddled at the bottom is excellent.) Then on the bottom were laid flat stones and old bricks, the sides being built of the same material. On these was placed a layer of concrete about 2 inches thick composed of cement and gravel in the ordinary way, this being also put well into the joints between the stones and bricks. When the concrete was dry, about ½ inch of mortar made up of cement and sand in about equal proportions was laid on with a trowel. As this proved insufficient to retain water, about ¼ inch of the same cement mixture, with about 10 per cent. of boiled linseed oil, added after the cement and sand were mixed with water, was laid on with a trowel and brushed over with cement wash.

It will be observed in the photograph that there is a kind of shelf surrounding the pond. This is formed by carrying back the line of the excavation just below the intended water line, furnishing the flat part with stones, surrounding it with an edge of these, and cementing the flat part and outer edging so as to make this part water-tight.

On the inner margin of this shelf—i.e. on the edge next to the water—stones are fixed, rising above the water level. In the space thus formed some drainage, made of small stones, is laid, and the space between the two edges is filled with rather peaty loam. This is planted with moisture-loving Primulas, Spiraeas, Globe Flowers, Irises, and other plants. In the bottom of the tank a layer of about 6 inches of loam is placed, in which to plant the Water Lilies in spring, from March to May. Test the tank to see if it is water-tight before the soil is added, otherwise an additional layer of cement and oil is necessary.

In order to empty the pool when required, it is preferable that at the lowest part there should be a plug leading to a drain. This cannot always be managed, and it may be necessary to empty the pool by means of a can or a small hand pump. It can often remain for years, however, without requiring emptying. After being filled for the first time the water in a pool such as this will probably become green and may appear offensive, but in a few days it will become clear. Afterwards green matter may accumulate, but this can be removed by means of a rake or hoe.

In the pool illustrated there is a small opening for an overflow at the corner. This leads into a small bog, so that the surplus water is made use of for additional moisture-loving plants.



A Small Tank for Water Lilies

Water Lilies or Nymphaeas are at their best when planted in such positions that they can develop freely without crowding each other, a condition, however, which can only be obtained when the water-garden is spacious. Even then it is possible to detract from the general effect by injudicious planting. It is usually a mistake to dot Water Lilies about over a wide expanse of water; rather confine them to the margins, leaving open spaces of water, which are quite as necessary to a pleasing effect as the plants. The latter are more easily seen and the beauty of their flowers is more apparent when they are seen at close quarters. Unfortunately, if the water-garden is confined to a restricted area, landscape effect cannot be studied, the first consideration being the cultivation of plants. Even in such cases it is unwise to plant the Lilies so close together that their leaves will meet before the season is half over; rather be contented with a few plants and allow open water between them. The great object in small water-gardens is to prevent overcrowding, therefore the owner must keep his plants small. When single, vigorous portions are planted, specimens may be expected from 3 to 5 feet across before the end of summer, whilst plants with several "crowns" grow much larger.

When the plants are growing close together there is a tendency for the leaf stalks to become short, and instead of floating gracefully upon the water they become stiff and crowd together, the centre of the plant often rising well above the water. It is therefore necessary to look over a small water-garden annually and reduce any plants which appear to be spreading quickly. Very vigorous kinds may be reduced to one crown, selecting one that appears to be strong and well rooted.

Hints on Planting.—It is wise to select a dry day, for, whether the water-garden consists of a tank or pond, it should be cleaned out as far as possible at the same time. The removal of mud will do much towards keeping the water clean and sweet for the summer. If the pond is small the plants can be placed in large pots, but it is usually advisable to put them in mounds of good loamy soil. These may be 2 feet across, encircled at the bottom by bricks and cased round by turves placed grass side inwards. If the loam is rich it can be used without preparation, but if of poorer quality, leafmould and well-decayed cow manure should be mixed with it.

A modification of this method of planting is to place the plants in baskets of soil. Should there appear to be any reason for thinking that the plants will be washed out of their positions, a few stones may be placed over the soil covering the roots. When ponds cannot be emptied, it is well to place the plants in baskets and sink them in the water; or, if a fair depth of mud is present, tie each plant to a brick or heavy stone and drop it in the water; it will then sink naturally into the mud and grow quite well. The plants should not be covered by less than 9 inches of water, and they do quite well where the depth is from 1½ to 2 feet.

Water Lilies in Tubs.—There are gardens, however, where space cannot be found for a pond of even modest dimensions;

but even in such gardens it is possible to grow a few Nymphaeas, for quite good results are obtained by procuring large barrels and cutting them through the middle so that a depth of 2½ feet or so is obtained. The sections are then sunk in the ground and filled with water, a single plant being placed in each. The difficulty with tubs and small tanks is usually found in keeping the water clean, so it is advisable to make provision for a frequent supply of fresh water. Should leafage become too dense a considerable number of leaves can be cut away during the summer.

When choosing positions for Nymphaeas, full exposure to sun is necessary, for the more sun Water Lilies get, the better they flower. If the garden is in such a position that the water can be slightly warmed by artificial means other varieties may be grown, one being the pretty blue-flowered N. stellata. When this plant can be included it is a decided asset, not only by its distinct colouring but by its flowers being produced well above the water on stalks 12 to 18 inches high. The flowers also keep open in the afternoon, whilst those of the hardier kinds are usually at their best in the morning.

Some Fine Water Lilies.—A great variation in the colouring of the flowers is noticeable in the hardy kinds, for, in addition to the familiar white of the common wild N. alba, we have some with pink, red and yellow blooms. A selection of pretty and useful kinds is as follows:

Marliacea albida, white; alba candidissima, white; Gladstoniana, white, very large and handsome flowers; odorata sulphurea, sulphur-yellow; Marliacea chromatella, sulphur-yellow; Marliacea flammea, red; tuberosa flavescens, yellow; Marliacea rosea, rose; atropurpurea, purplish red; Robinsoniana, red; William Falconer, red; odorata rosea, rose; fulgens, red; Laydekeri lilacea, rosy-lilac; pygmaea alba, white, small; William Doogue, pink. The Marliacea varieties are generally very strong growers.

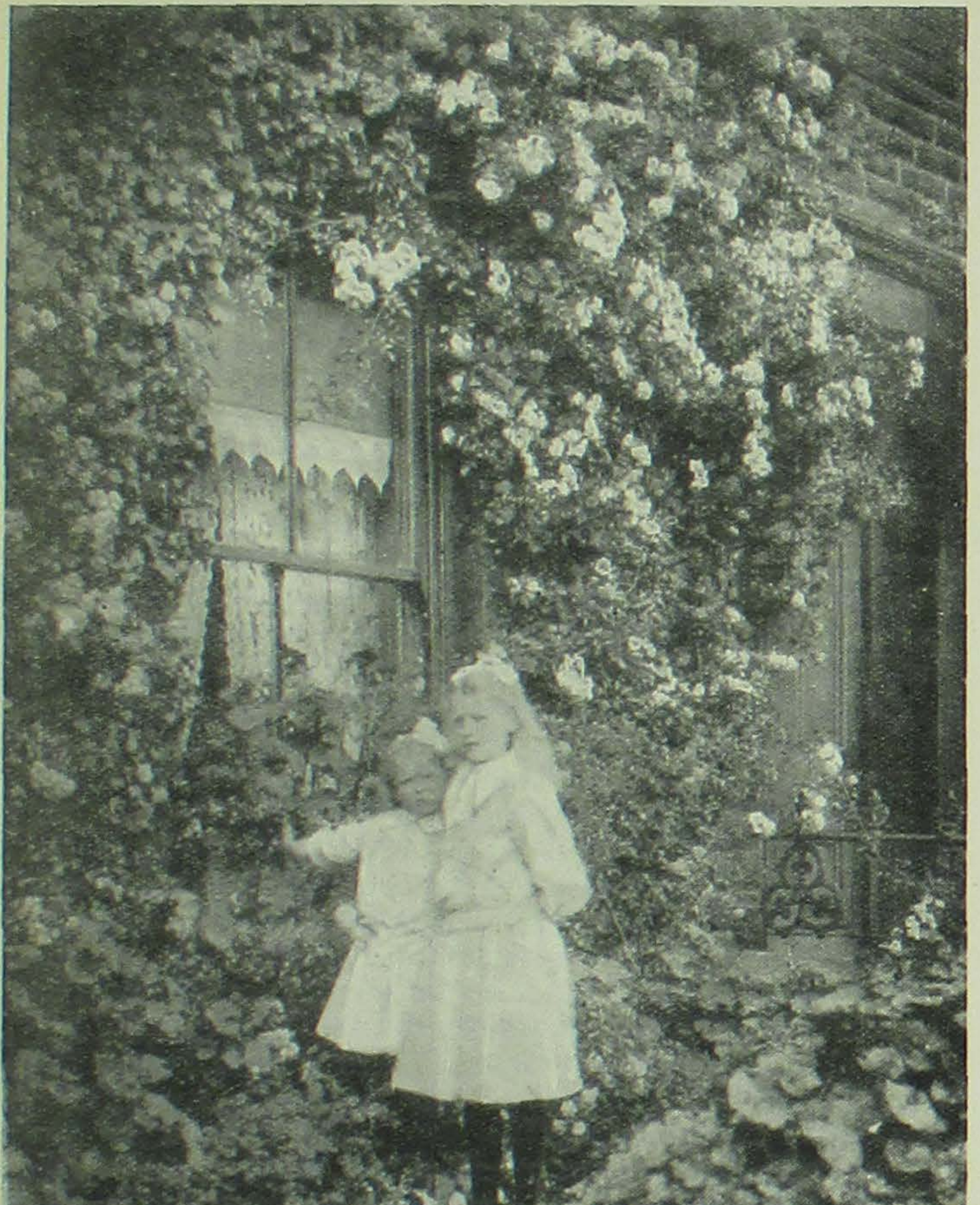
CHAPTER VIII

The Rose Garden

Roses must play an important part in every flower garden. They are in bloom throughout summer and autumn, and in addition to providing delightful flowers for cutting, their display in the garden is scarcely surpassed, if the correct sorts are chosen. If one recognises that rose beds are a permanent feature of the flower garden, it is apparent that the soil preparation must be thorough. Once well planted in properly tilled soil, roses are best left undisturbed; they will increase in vigour and beauty for years. Although one may assist them in later years by applications of manures, these cannot take the place of thorough tillage of the ground, without which it is not possible to grow roses successfully.

Let the site for the bed be dug 2 feet deep, farmyard manure being mixed with the lowest soil; basic slag is an excellent manure for roses, and ought also to be dug in the soil when the bed is being prepared. As October and November are the best months for planting, the rose beds should be prepared two or three weeks in advance, so that the soil may settle to something like its normal level before the bushes are put in. With such preparation as this, together with an annual application in February of bonemeal or Tonks' manure, and a sprinkling of Peruvian guano in May (or, if available, a weekly watering with liquid made from farmyard manure during May and June), the roses will flourish.

The chief points to observe in planting are to make the soil firm about the roots, and to put the plants at such a depth that the point at which the rose proper was budded on the stock is covered with about 1 inch of soil. Some varieties are much more vigorous than others, so the distance apart at which they are arranged must vary. Roses of moderate vigour should be about 15 inches apart, while the strong-growing sorts may be from 18 inches to 2 feet, according to the desire of the planter.



Climbing Roses on Cottage Wall

If the plants are 2 feet apart, it is possible to put other flowers between them, such, for example, as Tufted Pansies.

Pruning is an item that calls for careful performance. So much has been written on this subject, and so many varied opinions have been expressed, that amateurs are often bewildered. It is a commendable practice, I find, to prune newly planted roses severely; that is to say, all the shoots are cut back to within about two buds of the base in the month of March following planting. The bushes then have every chance to produce strong shoots from the two or three buds left.

In subsequent years the grower may prune lightly or severely as he wishes; but generally it is preferable to prune fairly hard. Lightly pruned roses soon become straggling and ungainly, and their blossoms deteriorate in quality, while plants cut back fairly severely each spring are of better shape, and produce more vigorous shoots, which consequently bear finer flowers. Severe pruning is, I find, especially advisable in the case of Hybrid Perpetuals and most of the Hybrid Teas, but for Teas and Chinas the pruning may be light.

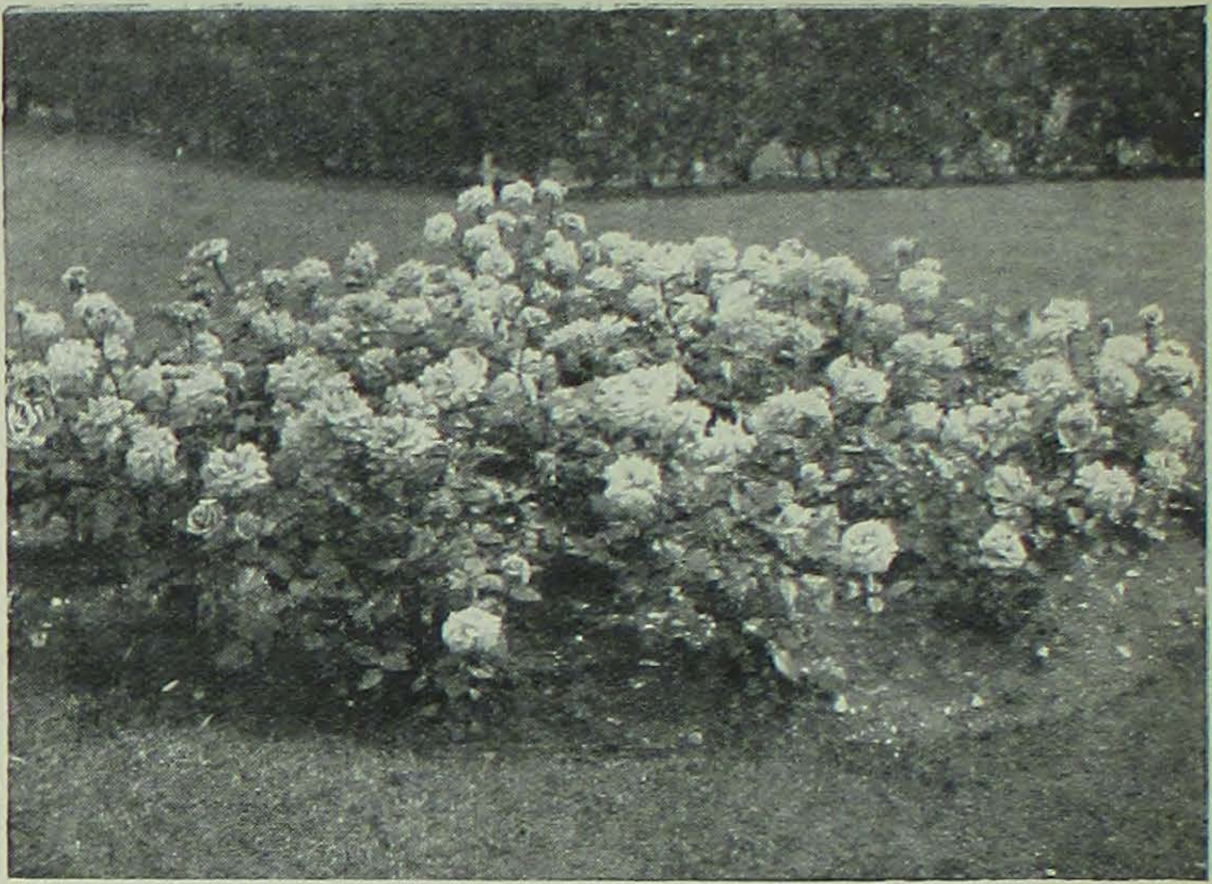
Different methods of pruning are required according to the soil, climate, and position in which the roses are cultivated. One may plant Hybrid Teas and Teas in rich, well-drained soil on a south border, at the foot of a sunny wall, and scarcely ever prune, except to remove weak and obviously useless shoots occasionally. They will make free and abundant growth, soon covering the wall. Plant the same roses in heavy ground in the open, in a less favourable climate, and their behaviour is altogether different. Unless fairly hard pruned, the shoots become weak and the plants deteriorate.

In Pruning Climbing Roses different considerations present themselves. While cutting down the shoots to within a few inches of the base in the March following planting yields good results, and ensures an abundance of strong shoots from the base, it is not always essential to follow this procedure, especially with the wichuraiana roses and the climbing "sports" of bush varieties (of which Climbing Liberty is an example). The wichuraianas usually produce sufficient fresh shoots from the base, even when the stems are not cut hard back; while, if hard pruned after planting, the climbing "sports" may refuse to climb. The initial pruning of wichuraiana roses (Dorothy Perkins type) may take the form of shortening the stems by about one-third; in future years such old stems as can be replaced by fresh ones are cut out late in July after the blossoms are over and the new ones are trained in to replace them. In first pruning roses of the type of Climbing Liberty one or two of the stems may be left almost full length, weak ones being shortened to within about 12 or 18 inches of the base. In future years, as fresh stems develop, the old ones are removed to make way for them when the flowering season is over. In dealing with other climbing roses of the multiflora (Crimson Rambler) type, Hybrid Teas and Noisettes, such, for example, as Noëlla Nabonnand and William Allen Richardson, it is best, I believe, to shorten the stems to within 6 inches of the ground in the March following planting. In future years one need only remove old, worn-out stems and train in new ones to replace them.

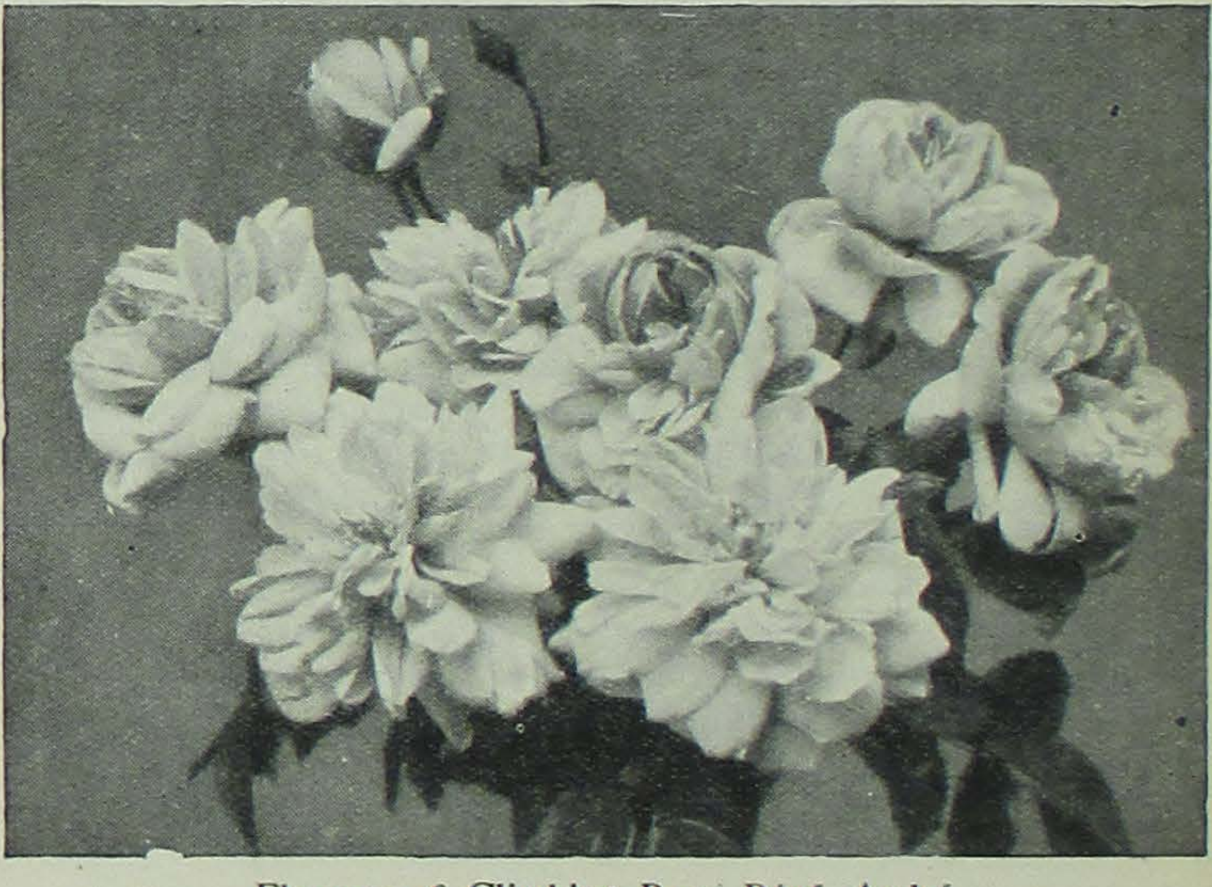
When pruning established climbing roses it is necessary to distinguish between stems of the past year's growth and those of greater age; it is usually the former that give the finest display of blossom, and they should on no account be cut out or shortened (unless it be to remove the soft or unripened ends). A good deal of blossom is also obtained from side shoots that have formed on the older shoots; in spring they should be cut back to within two or three buds of the base. It is sound practice, when pruning established roses, to cut out an old stem whenever it can be replaced by a fresh one, and the best time to do this is when the flowering season is past.

In dealing with such roses as Dorothy Perkins, Hiawatha, Excelsa, and others of that type, the best plan is annually to cut out the old stems that have flowered, and in their place to train the new shoots of the current year's growth. It is, of course, of no use cutting out the old stems unless there are fresh ones to replace them, but these are usually produced abundantly in roses of this type. To do this work properly it is necessary to take down all the shoots and lay them on the ground; the old ones can then easily be removed and the remainder be tied to the support.

Amateurs often find difficulty in appreciating the difference between the different classes into which bush roses are grouped. Most popular of these are Hybrid Perpetual, Hybrid Tea, and Tea.



Rose Duchess of Wellington (orange-yellow, fragrant)



Flowers of Climbing Rose Réné André

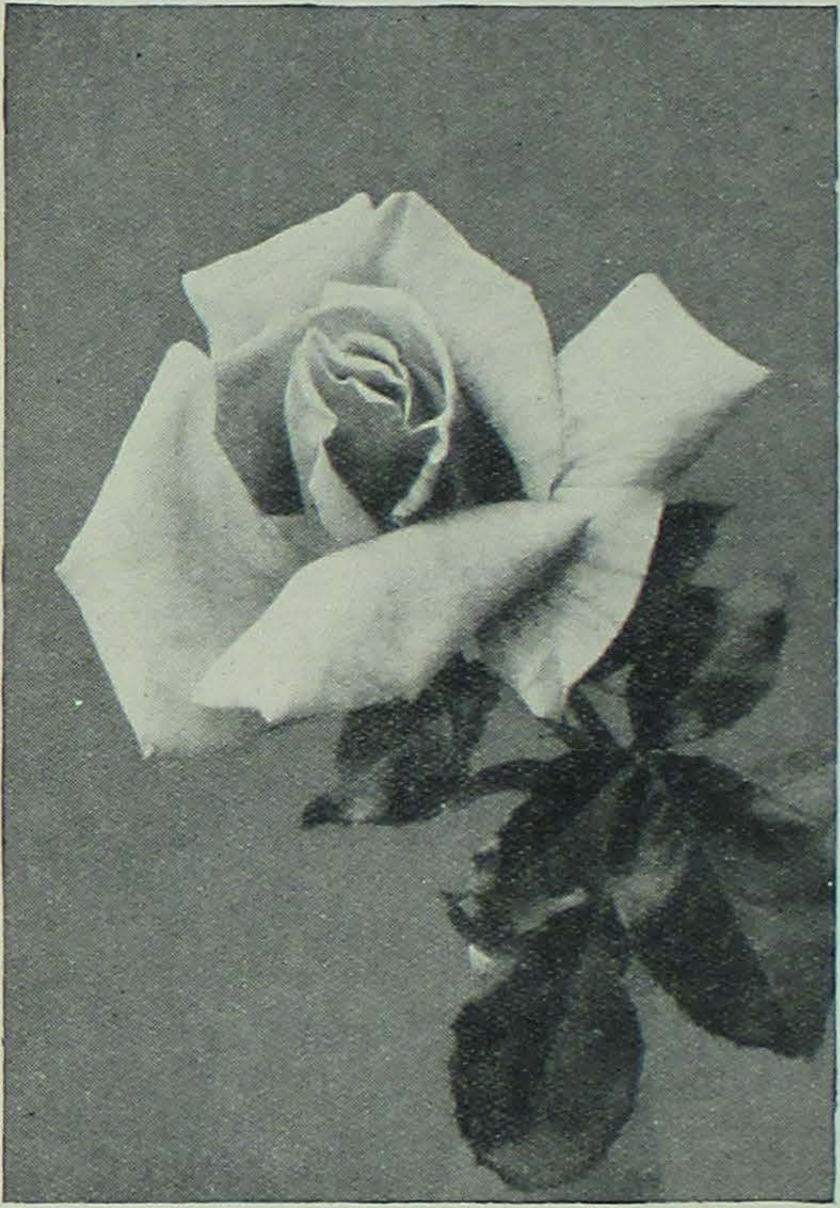
Hybrid Perpetual Roses.—This class, so named many years ago, consists of roses which are not nearly so perpetual-flowering as certain others now obtainable, and the word "perpetual" in this case is misleading. Many of the Hybrid Perpetuals commonly grown are old roses, distinguished by considerable vigour of growth and large blooms (chiefly self-coloured; pink, white, blush, red or crimson) on stiff stems. The chief flowering season is in July, although some varieties bloom again in autumn.

Hybrid Perpetuals thrive in heavy ground and in circumstances not likely to suit the rather more fastidious Teas and some of the Hybrid Teas. Plant in October and November, and prune in the third week of March. Cut down all stems to within a few inches of the base at the first pruning, and in subsequent years cut the weak shoots to within an inch of the base and shorten the remainder to from 4 to 8 inches, leaving the strongest the greatest length. Very thin and weakly shoots should be cut out, together with others that tend to block up the centre of the bush.

The vigorous varieties of Hybrid Perpetuals may be allowed to develop into large bushes; to achieve this purpose the finest shoots should only be slightly shortened, or they may be pegged down by attaching the end to a peg in the ground. A few good strong-growing Hybrid Perpetuals are: Candeur Lyonnaise, white; Captain Hayward, scarlet-crimson; Commandant Félix Faure, blackish shading on red; Duke of Edinburgh, bright red; Frau Karl Druschki, white; Hugh Dickson, red; Madame Victor Verdier, light crimson; Mrs. John Laing, pink; Mrs. Sharman Crawford, pale rose pink; Sénateur Vaisse, red, and Ulrich Brunner, deep rose red. All these may be placed at, or towards, the back of the border, or in the centre of a rose bed.

Varieties of moderate vigour, suitable for the front portion of the border or for planting nearer the margin of a bed, are Charles Lefêbvre, crimson scarlet; Fisher Holmes, crimson scarlet; François Coppée, dark crimson; Louis Van Houtte, maroon crimson; Paula Clegg, red; Prince Camille de Rohan, maroon crimson; and Victor Hugo, bright crimson.

The finest dark red and crimson roses, and many of the most fragrant varieties, are still found among the Hybrid Perpetuals. Some varieties in this group which flower in autumn are Fisher Holmes, Hugh Dickson, Louis Van Houtte, Mrs. John Laing, Mrs. Sharman Crawford, Sénateur Vaisse.



Tea Rose Lady Roberts (orange and apricot shades)

Hybrid Tea Roses.—The Hybrid Teas are so called because they were derived originally from cross-breeding or hybridising between the Tea roses and the Hybrid Perpetuals. They are distinguished by generally vigorous growth and a long season of blossoming, though cross-breeding has been carried out to such an extent that different varieties of Hybrid Teas vary considerably.

The best of the Hybrid Teas are strongly to be recommended to the amateur; they are easy to grow and bloom throughout summer and autumn. Many beautifully coloured roses are found among them, the shades represented ranging from white through pink to crimson, and through pale yellow to orange. The vigorous varieties are pruned in much the same way as recommended for the Hybrid Perpetuals. In March the strongest shoots are shortened to within from 4 to 8 inches of the base (the strongest being left the longest), and the weaker ones are cut back to within one or two buds.

Thin and useless shoots should be cut out altogether. If planted against a warm, sunny wall or fence in good soil, and lightly pruned, some of the vigorous Hybrid Teas will develop into semi-climbers. It is, however, only in mild districts that they are likely to give satisfaction in this way, and in the average garden they are best treated as bush roses.

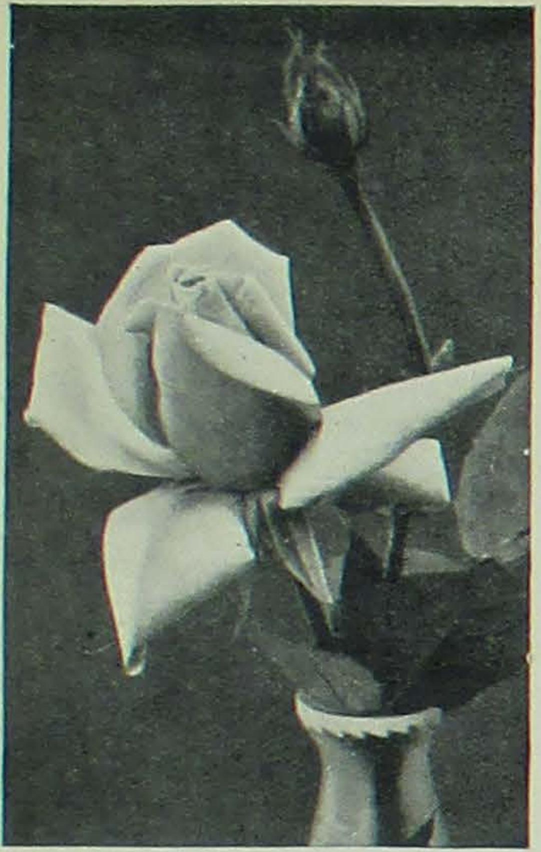
Vigorous varieties suitable for the back of the border or for the middle of a bed are the following: Avoca, bright crimson; Caroline Testout, pink; Dean Hole, salmon pink; General McArthur, bright red; Grace Darling, cream and rose; La Tosca, pale salmon rose; Laurent Carle, carmine red; Prince de Bulgarie, pale rose with yellow shading. Such as Hugh Dickson and Grüss an Teplitz, both bright crimson, are too vigorous to plant among the bush or dwarf rosss, and should be placed against a fence or pillar, or they may be allowed to form large bushes.

Rose Marquise de Sinety (H.T.), shades of yellow, rose and copper

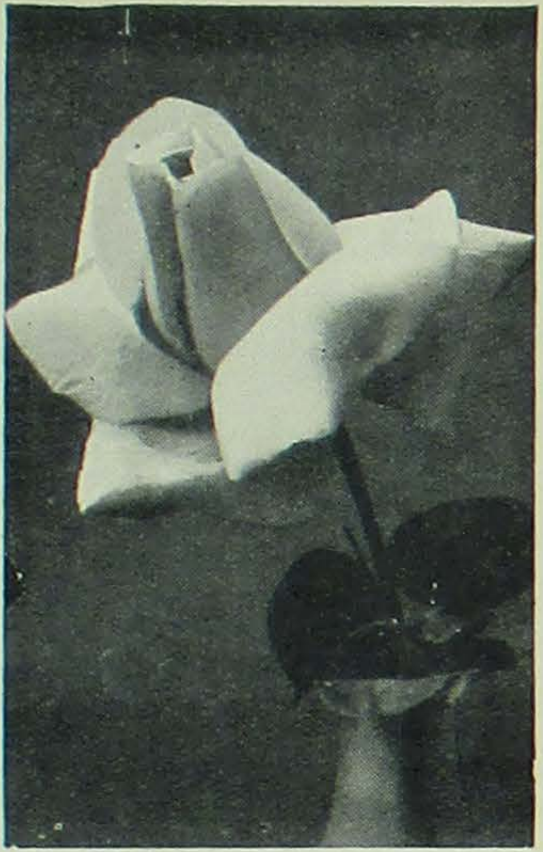
Varieties rather less vigorous than those named and suitable for the middle of a border, or for the second row in a bed, are Betty, old gold and rose; Chrissie MacKellar, orange and pink shades; Duchess of Wellington, orange-yellow; Grand Duc Adolphe de Luxembourg, pale rose with reddish reverse; Königin Carola, rose with paler reverse to the petals; Lady Ashtown, pale rose; Lieutenant Chauré, bright red; Madame Abel Chatenay, salmon rose; Madame Léon Pain, pale salmon rose with yellow shading; Margaret, pink; Mrs. David McKee, cream yellow; Mrs. Theodore Roosevelt, white with pale rose shading; Natalie Bottner, cream yellow; Ophelia, blush with yellow centre; Pharisaer, pale rose with salmon shading; Réné Wilmart Urban, pale salmon with deeper shading; Warrior, crimson buds, paler flowers.

Varieties of lower growth and suitable for planting towards the margin of both beds and borders are: Augustine Guinoisseau, white with pale rose shading; Château de Clos Vougéot, velvety crimson, lovely colour but a poor grower; Countess of Derby, salmon rose; Duchess of Portland, pale yellow; Duchess of Westminster, rich rose; Earl of Warwick, salmon pink; George C. Waud, red with orange tinge; Gustav Grünerwald, rose pink; James Coey, yellow, paler towards the edges of the petals; Joseph Hill, shades of yellow and rose; Kaiserin Augusta Victoria, cream white; Lady Pirrie, shades of copper and salmon; Le Progrès, yellow; Liberty, red; Lyon Rose, shades of coral red and yellow; Madame Edouard Herriot, intense coral red; Madame Jules Grolez, bright rose; Madame Ravary, yellow; Marquise de Sinety, shades of yellow, bronze and rose; Mrs. Amy Hammond, cream with faint yellow shading; Mrs. A. R. Waddell, shades of rose-red and salmon; Mrs. Peter Blair, lemon yellow; Old Gold, red and orange-yellow; Richmond, red; Souvenir de Gustave Prat, pale yellow.

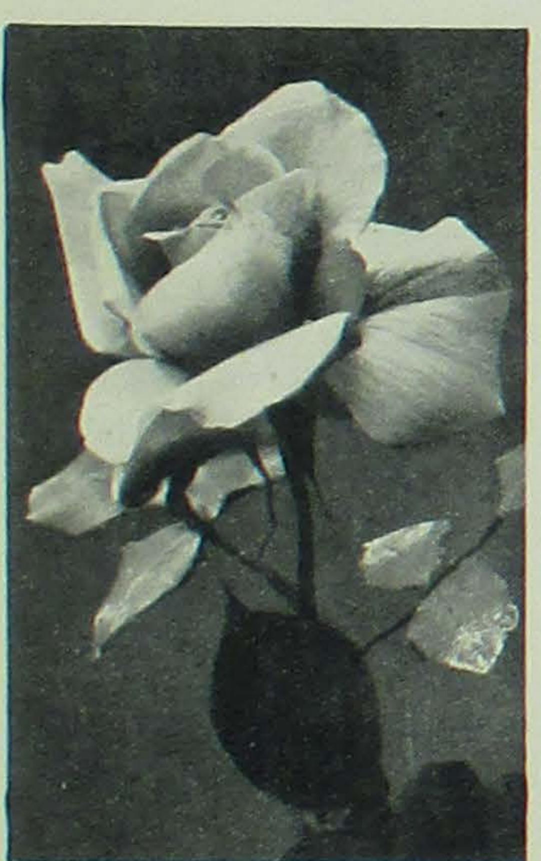
Many of the foregoing varieties are "thin" roses, that is to say, the petals are comparatively few in number, and the bud therefore soon becomes an open flower. Those who care for full roses—i.e. those which retain their form longer and do not so soon become full blown—should rely to some considerable extent upon Hybrid Perpetuals. Roses of this kind are also to be found among the Hybrid Teas. It is often the case that very full roses, while excellent for exhibition, are not suitable for garden display; in wet weather the petals are liable to "ball" or stick together, instead of opening freely. The following are some of the best of the "full" Hybrid Teas:



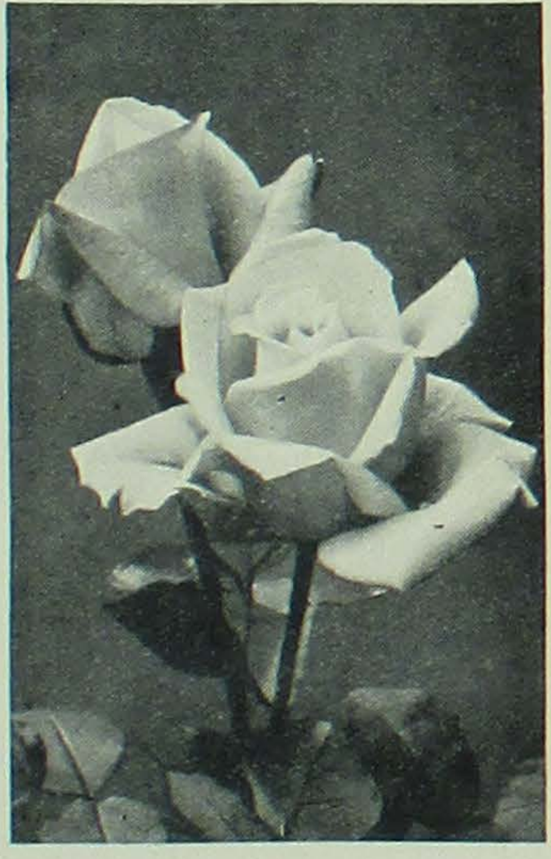
Louise Catherine Breslau



St. Helena



Chrissie Mackellar



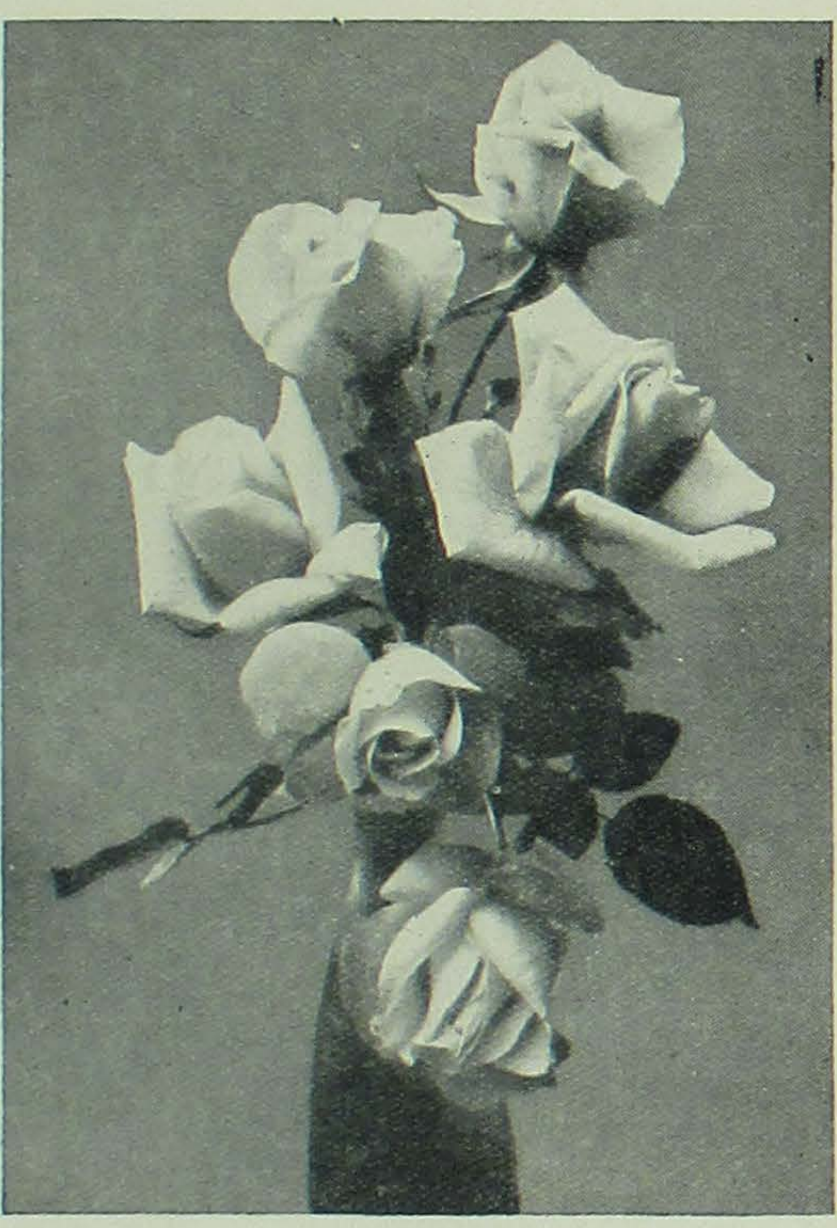
Mrs. Roosevelt

Caroline Testout, pink; Countess of Derby, salmon rose; Dean Hole, salmon and rose; Duchess of Westminster, bright rose; George C. Waud, red with orange tinge; Joseph Lowe, salmon pink; Lady Ashtown, rose pink; Lady Greenall, creamy yellow; Laurent Carle, carmine red; Liberty, red; Madame Abel Chatenay, salmon pink; Madame Jules Grolez, rose; Margaret, pink; Mayflower, cream with pink shading; Mrs. Amy Hammond, cream yellow with shading; Mrs. Theodore Roosevelt, white with rose tinge; Natalie Bottner, cream yellow; Ophelia, pale rose with yellow shading; Prince de Bulgarie, pale rose with yellow shading.

The most fragrant of the Hybrid Teas is the orange-yellow variety, Duchess of Wellington, which has a scent of ripe apricots. Others having more or less fragrant blooms are Augustine Guinoisseau, blush white; Avoca, crimson; Betty, old gold and rose; Château de Clos Vougéot, velvety crimson; General McArthur, red; George C. Waud, red with orange tinge; George Dickson, intense crimson, thrives best when pegged down or grown as a pillar rose; Grüss an Teplitz, red, very vigorous; H. E. Richardson, crimson; Hugh Dickson, red, vigorous; La France, silvery pink; Lady Alice Stanley, shades of rose; Laurent Carle, large, carmine red; Lieutenant Chauré, crimson; Madame Abel Chatenay, salmon pink; Madame Ravary, yellow; Mrs. Alfred Tate, shades of copper and red; Mrs. Peter Blair, pale yellow.

Tea Roses.—These are of less vigorous growth than either the Hybrid Perpetuals or Hybrid Teas; they have a prolonged season of flowering, and may be found in bloom from June to November. Tea roses need rather lighter soil than the other two classes mentioned, and a warm sunny border is necessary in cold districts, although in Southern gardens they are grown in the open in company with others. Generally, Tea roses make rather thin, twiggy growth, and comparatively little pruning is required. It is necessary in March merely to cut out the thin and obviously useless shoots from towards the centre of the plants, and to shorten the remainder by about half. During winter many of the shoots die back partially, and the pruning often resolves itself into cutting off the dead portions. Many charming tints are found among the Tea roses, some of which ought to be in every garden.

The following are some of those chiefly to be recommended for the garden: Alexander Hill Gray, lemon-yellow; Anna Olivier, pale rose with buff shading; Betty Berkeley, red; Corallina, coral red; Dr. Grill, shades of rose and copper; G. Nabonnand, pale rose with yellow shading; Harry Kirk, yellow, more vigorous than many; Hugo Roller, cream with rose shading; Jeanne Phillipe, light yellow; Lady Hillingdon, orange - yellow, has drooping flower stalks and is best grown as a standard; Lady Roberts, orange-apricot; Madame Antoine Mari, cream and rose, one of the best Teas for the garden; Madame Hoste, cream-yellow; Molly Sharman Crawford, greenish white; Mrs. Foley Hobbs, white with pink tinge; Mrs. Herbert Stevens, white with faint rose shading; Mrs. Sophia Neate, salmon and pink shades; Rosomane Narcisse Thomas, shades of red and apricot; W. R. Smith, cream shaded with pink.



Rose Madame Leon Pain and other modern Hybrid Teas

Tea roses thrive excellently as standards and half-standards, and it is from such plants that exhibitors often cut their best flowers. The flower stems of many of the Tea roses are inclined to droop, therefore they show to the best advantage when grown in the form of standards.

Pernetiana Roses.—The Pernetiana group of roses is comparatively new, having been originated by M. Pernet Ducher. The first variety raised was Soleil d'Or, introduced to commerce about sixteen years ago. Since then, and especially during the last few years, many varieties have been raised. They are distinguished by intense and novel colouring, and the correct treatment is very similar to that required by the Hybrid Teas. The Pernetiana roses divide naturally into two sections, each of which requires different treatment. Those of one section are summer-flowering only, and make vigorous shoots, which are not pruned in March, merely the tips being cut off. The plants may be allowed to form large bushes, or the shoots can be pegged down; they are also suitable for use as semi-climbers for short pillars. Some of the best varieties in this section are Beauté de Lyon, coral-red with yellow shading; Soleil d'Or, orange-yellow and red; Juliet, old gold and rose-red; Deutschland, yellow with rose shading. The other section, comprising roses of low growth, are far more useful to the amateur, such, for example, as A. R. Goodwin, yellow and bronze shades; Cissie Easlea, yellow; Constance, yellow; Louise Catherine Breslau, shades of red and yellow; Lyons Rose, coral red and yellow shades; Madame Edouard Herriot, intense terra-cotta; Golden Emblem, golden yellow; Tim Page, golden yellow. All the latter may be placed among the Hybrid Teas of low growth and among the Teas, and are pruned as recommended in the notes dealing with Hybrid Teas.

Fairy or Dwarf Polyantha Roses.—These are particularly useful as an edging to rose beds; they are of dwarf, compact growth, and their bunches of blossom are produced in profusion throughout the summer. Or they may be planted as a groundwork beneath thinly arranged standard roses. Many new varieties have been raised during the last few years. Some of the best are: Aennchen Müller, pink; Cecile Brunner, rose-pink; Ellen Poulsen, rose; Jessie, crimson; Katherine Zeimet, white; Léonie Lamesch, shades of copper red and yellow; Merveille des Rouges, crimson; Mrs. W. H. Cutbush, pink; Orléans, rose crimson; and Susie, salmon rose shades.

Climbing Roses.—Under the general heading of climbing roses many classes are included, such, for example, as wichuraiana, multiflora, Hybrid Tea, Tea, Noisette, and others. Beautiful roses are to be found in each class, though some are far more suitable to the amateur's garden than others.

The wichuraiana roses are of very vigorous growth, and each year make shoots varying in length from 15 to 20 feet or even more. The correct treatment is, in late July or early August, to cut out the old stems and to tie in their places the fresh stems of the current season's growth. If it is necessary to leave a few of the old stems to cover the space properly, the side shoots on them are cut back to within two or three buds of the base in March. A few varieties of this class of rose—such, for example, as Alberic Barbier and Réné André—do not

A Basket of Hybrid Tea Roses

produce fresh stems from the base very freely, therefore the pruning must be as for the multiflora roses as described in the next paragraph. A few of the best wichuraiana roses are Alberic Barbier, yellow buds, almost white flowers; American Pillar, large, single, pink flowers, very vigorous, with large leaves; Aviateur Blériot, yellow; Débutante, pink; Dorothy Perkins, pink; Edmond Proust, carmine and bronze; Excelsa, crimson; François Foucard, pale yellow; François Juranville, bright rose; Hiawatha, single, crimson; Joseph Liger, yellow with pink shading; Lady Godiva, light pink; Léontine Gervais, shades of salmon and yellow; Minnehaha, rose coloured; Sander's White, white; Shower of Gold, golden yellow buds, paler flowers; and Emily Gray, yellow.

The multiflora roses are typified by the well-known variety Crimson Rambler. They do not produce fresh shoots from the base so freely as most of the wichuraiana roses, but they are vigorous. The correct pruning is, in late July, to cut out such old stems and shoots as can be spared, and to train in new shoots to replace them. It is necessary to preserve old stems with greater care than in dealing with the Dorothy Perkins type, but one can usually cut out those that are more than two years old. Side shoots on stems of more than one year old are cut back to within two or three buds in March. A few of the best varieties are Blush Rambler, apple blossom-like clusters, pale blush; Crimson Rambler, bright red; Dorothy Jeavons, like a white Blush Rambler; Goldfinch, yellow; Grüss an Zabern, white; Hélène, lilac rose; Leuchtstern, rose and white; Mrs. F. W. Flight, pink and white; Rubin, rose red, reddish foliage; Tausendschön, rose; Tea Rambler, pink and bronze shades; Scarlet Climber, scarlet; Wedding Bells, rose-pink; White Tausendschön, white.

There are many good roses among the climbing Hybrid Teas. Some sorts need careful pruning, and even then it is not always possible to prevent their getting bare at the base. It is unwise to cut back the stems severely at the first pruning after planting; they may be shortened to the extent of one-third or even one-half; if the stems are very weak it would, of course, be better to cut them down to within 6 inches or so of the base. As fresh shoots develop it becomes possible to cut out the old ones. In later years the aim should be to cut out the old and comparatively worthless stems to make room tor the new ones. Sometimes a good new shoot starts to grow some distance up an old stem; then the latter must be cut back only to that point. It is an excellent plan to train the shoots in a horizontal direction, or at least to bend them well down; this has the effect of causing a larger number of buds to start growing than would be the case if the stems were allowed to remain upright. In some respects the climbing Hybrid Teas are to be preferred to the rambler roses for small gardens; they do not, it is true, produce such a lavish display of blossom in high summer as the ramblers, but neither do they take up so much room, while they blossom more or less thoughout the season. One can accommodate several climbing Hybrid Teas in the space needed by one rambler, and thus the garden gains interest.

A few excellent sorts are: Ards Rover, crimson; François Crousse, crimson; Johanna Sebus, rose; Lady Waterlow, rose tinged with salmon; Lemon Pillar, pale lemon-yellow; Noëlla Nabonnand, rose-crimson; Reine Olga de Wurtemburg, bright red. Then there are some fine roses among the "sports" of well-known dwarf roses, such, for example, as Climbing Caroline Testout, Climbing Liberty, Climbing Richmond, Climbing Paul Lédé, Climbing Marquis de Sinety, Climbing Mrs. W. J. Grant, and others.

Climbing Tea roses are, on the whole, rather tender, and a warm wall is required if they are to be grown to the best advantage. The remarks on pruning climbing Hybrid Teas apply also to these. A few charming sorts are Bouquet d'Or, shades of yellow and fawn, hardier than some; Climbing Perle des Jardins, yellow; Climbing White Cochet, white; Dr. Rouges, red with yellow shading; Duchess d'Auerstedt, yellow; Gloire de Dijon, shades of yellow and salmon, well known and easy; Madame Bérard, salmon and yellow.

A few other good climbing roses are Aimée Vibert, large clusters of white blossom; Rêve d'Or, yellow; Conrad F. Meyer, rose pink, very vigorous, a good variety with which to cover a fence; Félicité Perpétue, small, white, fragrant flowers; Trier, a perpetual flowering rose with bunches of white single flowers.

Aids to Success.—If roses are planted in early autumn in soil prepared as already advised, they ought not to need any further manure during the following season, unless it is a sprinkling of Peruvian guano after the first crop of flowers is over; they will then make fresh vigorous growth, and so produce a satisfactory second crop. In subsequent years it is advisable to scatter basic slag on the surface of the beds, at the rate of about 6 ounces to the square yard, and in February to give bonemeal at the rate of 3 ounces per square yard. Both should be forked beneath the surface. An annual mulch of partly decayed manure (forked beneath the surface) in spring, after pruning is completed, also does good, and might well be alternated with the dressing of bonemeal. A complete plant food recommended for application to roses in February is known as Tonks' Manure, and is made up as follows: superphosphate of lime, 12 parts; nitrate of potash, 10 parts; sulphate of magnesia, 2 parts; sulphate of iron, 1 part; sulphate of lime, 8 parts. During May and June a slight scattering of Peruvian guano does good, and the application may be repeated when the first display of flowers is over. Too much stress can scarcely

Climbing Rose Réné André

be laid upon the value of hoeing the rose beds once or twice a week. Not only does this keep down weeds but it prevents the soil getting dry, and thus obviates the necessity of watering so frequently. Backward roses or those that are not growing freely often benefit if they are syringed with soft water each morning and evening in dry weather. Rose bushes generally produce a number of small, useless shoots, chiefly in the middle of the plants; they harbour insect pests, never produce a blossom, and to some extent prevent the full development of the finer shoots. They ought to be removed in early summer.

Standard roses are great favourites with amateur gardeners, and, providing suitable varieties are chosen, they form handsome specimens, the flowers being prominently displayed. In planting standards, care should be taken that the roots be not covered with more than about 2 inches of soil. There is always the temptation to cover them with 6 inches or so for the purpose of making them firm in the ground. It is, of course, essential that they be made firm, because they are naturally fully exposed to wind, but support ought not to be provided by deep planting, but by staking. When the hole is ready to receive the standard rose, a stout stick (the square deal stake, about ¾ inch in diameter, painted green, is best) should be placed in position; damage to the roots is then avoided. When planting is completed, the stem is made secure to the stake.

There are three chief kinds of standard roses: weeping standard, ordinary standard, and large-headed standard. The first is obtained by budding a rambling or climbing rose on a tall brier stem; the second by using a bush variety of ordinary vigour of growth; the third results when a strong-growing rose, as distinct from a rambler or true climber, is made use of,

Weeping roses are now very popular, and in a small garden ramblers are, I think, best planted in this form. The taller the stem of the weeping standard the more handsome it is, for the better chance have the long shoots of full display. These standards need to be isolated in order to be seen at their best. They look especially well if grouped on a lawn, each not less than 8 feet from its neighbour. Several may be planted in a large bed, the soil between them being covered with dwarf Polyantha or Fairy roses. The pruning is similar to that required for the same rose grown as an ordinary climber, and this, put briefly, is (as soon as the flowers are over) to cut out such old stems and shoots as can be replaced by fresh ones: the finest display is produced by the younger growths. A few suitable varieties to grow as weeping standards are Aimée Vibert, white; Alberic Barbier, pale yellow; Bennett's Seedling, white; Dorothy Perkins, pink; Félicité Perpétue, white; F. Foucard, lemon yellow; Hiawatha, single, crimson; Joseph Billard, rose and pale yellow; Lady Godiva, pale pink; Léontine Gervais, salmon rose with yellow shading; Minnehaha, deep pink; Réné André, shades of orange, red and yellow; Tausendschön, rose-pink; Sander's White, white.

Large-headed standards are very beautiful objects when finely grown. They look equally well on a lawn or may be planted in a bed of ordinary bush or dwarf roses. The following are suitable varieties to choose for this purpose: Avoca, crimson; Bouquet d'Or, shades of yellow and buff; Climbing Caroline Testout, pink; Climbing Liberty, red; Climbing Marquise de Sinety, bronze yellow shaded with red; Climbing Mrs. W. J. Grant, rose pink; Climbing White Cochet, white; Gloire de Dijon, buff and yellow; Grüss an Teplitz, crimson; Gustave Régis, soft light yellow; Hugh Dickson, crimson; Mme. Bérard, buff, yellow, and salmon; and W. A. Richardson, orange-yellow. The pruning required by these roses consists in cutting back in March, to within three or four buds, the side shoots on the older branches, and in autumn such old growths as can be dispensed with. In pruning standard roses it is essential to remove all small, weakly shoots, otherwise they crowd the centre of the " head " and tend to spoil the ceffet.

Ordinary standards may be of the dwarf Hybrid Perpetual, Hybrid Tea and Tea roses; the pruning is as described for these. Varieties that can be recommended to form good standards are: Caroline Testout, pink; Corallina, coral pink; Dean Hole, pale rose salmon; Duke of Edinburgh, bright red; Frau Karl Druschki, white; Fisher Holmes, crimson; General McArthur, red; Gustav Grunerwald, rose pink; Lady Ashtown, pale rose; La Tosca, salmon rose and blush; Mrs. Edward Mawley, carmine pink; Madame Léon Pain, pale rose with deeper shading; Mrs. John Laing, pink; Ulrich Brünner, rose; White Maman Cochet, white.

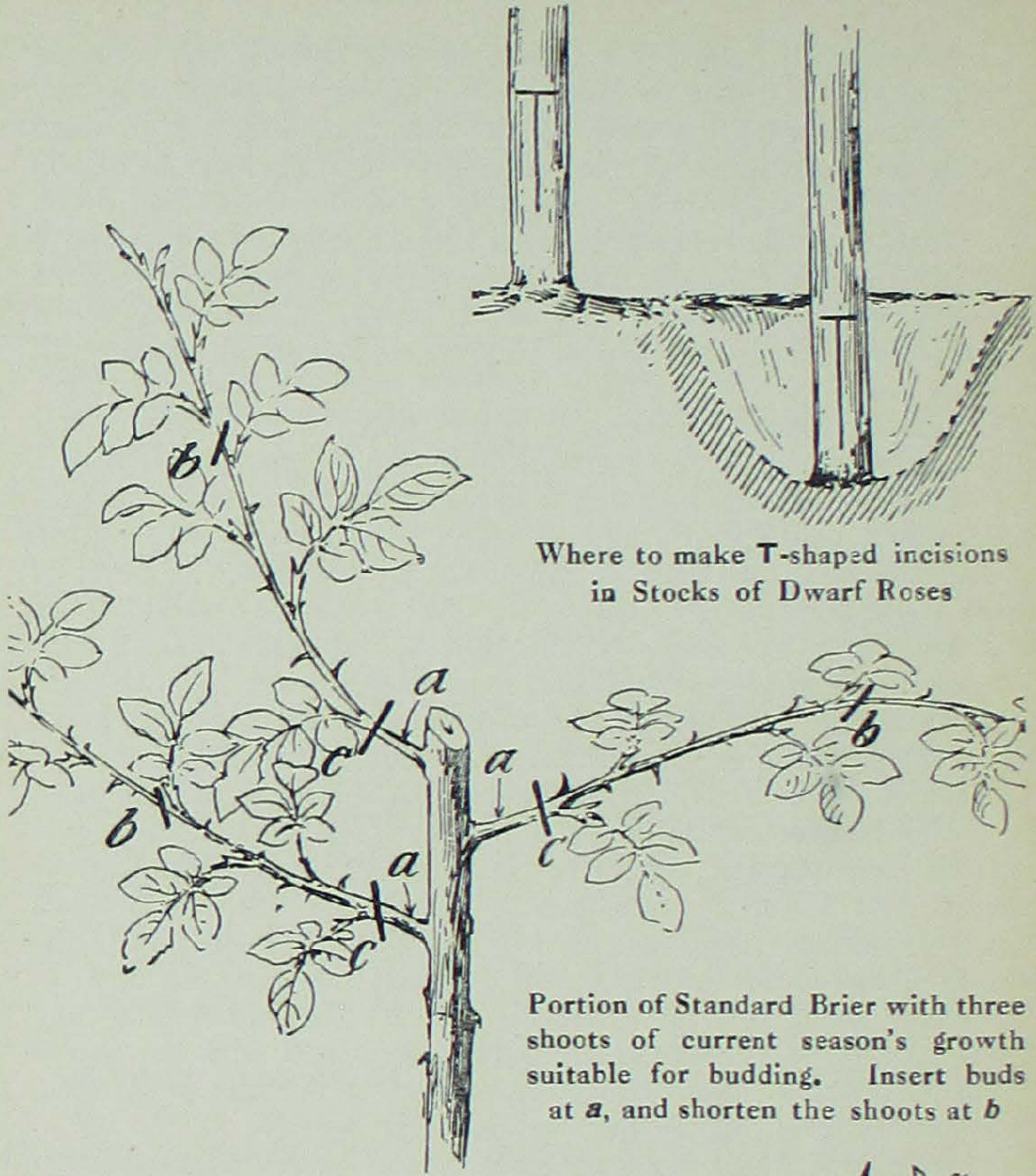
Budding Roses.—Dull showery weather during the months of July and August is the best time for budding roses. The stock generally used for standard trained trees is the common wild brier; for dwarf or bush roses Manetti stocks or two-year-old briers raised from seed are the best. In budding standard roses the buds must be inserted in growth of the current season as near the main stem as practicable, whilst in the case of dwarf or bush roses the buds are inserted in the main stem just above or just below the ground level. Select free-growing, well-matured shoots which have borne flowers for providing the buds, which are found in the axils of the leaves and should be plump and prominent.

Cut out each bud required with a sharp knife, inserting this about ½ inch below the leafstalk, and so manipulating it that a thin slice of wood is included with the bud and the blade brought out about ½ inch above the bud. The thin slice of wood removed with the bud must now be taken out by inserting the point of the knife and lifting up the lower end so that the wood can be pulled away by means of the thumb and knife point. This operation is very important and requires great care, for if the eye, which is the vital part of the bud, comes away with the wood, the whole thing is rendered useless and another bud must be prepared. The buds should be kept in damp moss until required.

The incision, made in the branch or main stem of the stock, as the case may be, should be just through the bark and in the shape of a T a little more than an inch long. The bark on each side of the cut should be raised by the aid of the thin end of the haft of the knife and the shield and bud inserted, the piece of leafstalk being used as a handle. Thrust the bud well in, and cut off any part of the shield outstanding level with the top of the T. The bud must be tied in position with raffia or worsted, which, however, should not be bound too tightly.

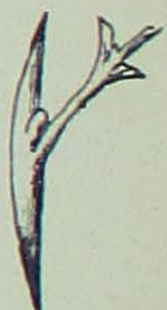
Plenty of water must be given to the stocks, particularly if the weather is dry, and if all goes well the buds should commence to swell in the course of four or five weeks, when the ties must be examined and readjusted to provide ample swelling space. Do not remove the ties altogether until the autumn, when the growth on the stocks beyond the point of budding may be cut back nearly half its length, the remaining portions beyond the bud being removed at pruning time.

Cuttings of Roses.—Many vigorous roses do quite as well on their own roots as when budded on stocks. Although October and November are looked upon as the principal months for insert-

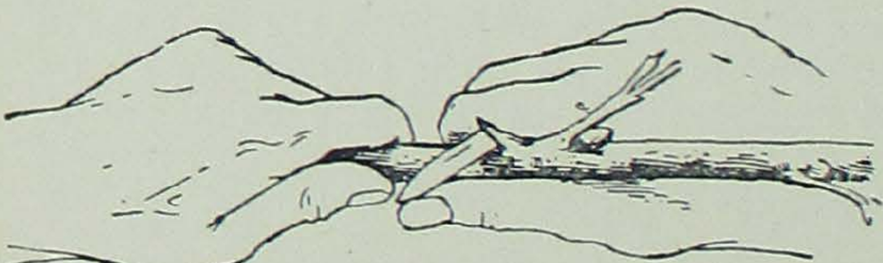


Where to make T-shaped incisions in Stocks of Dwarf Roses

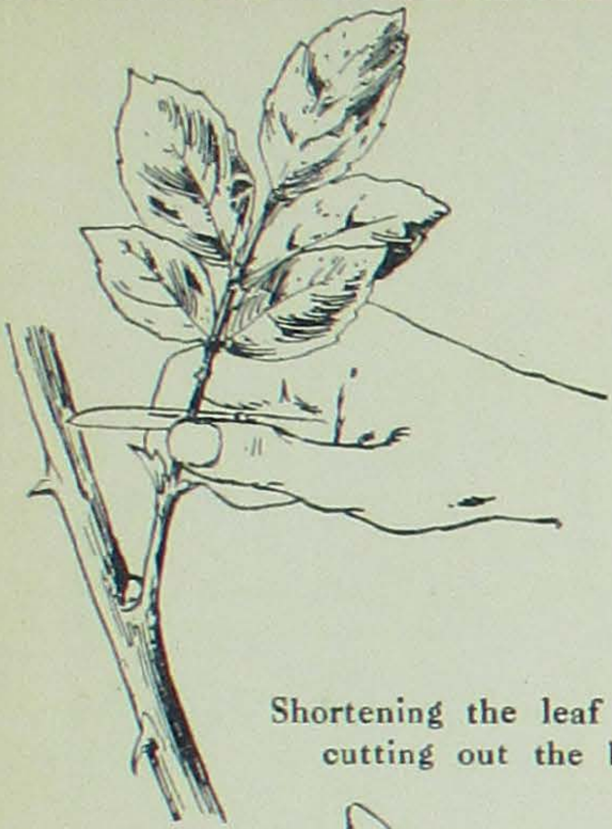
Portion of Standard Brier with three shoots of current season's growth suitable for budding. Insert buds at ***a***, and shorten the shoots at ***b***



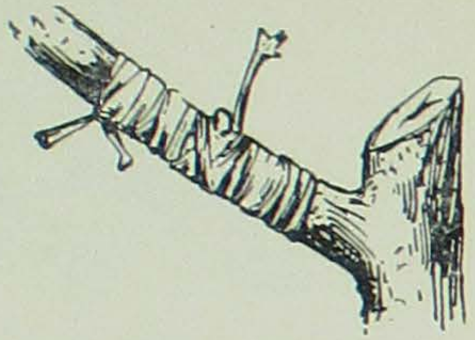
Showing the prepared bud



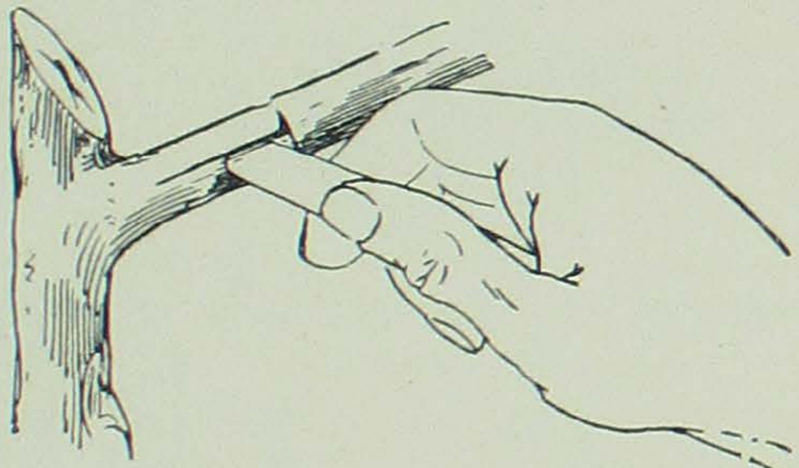
Cutting out the buds



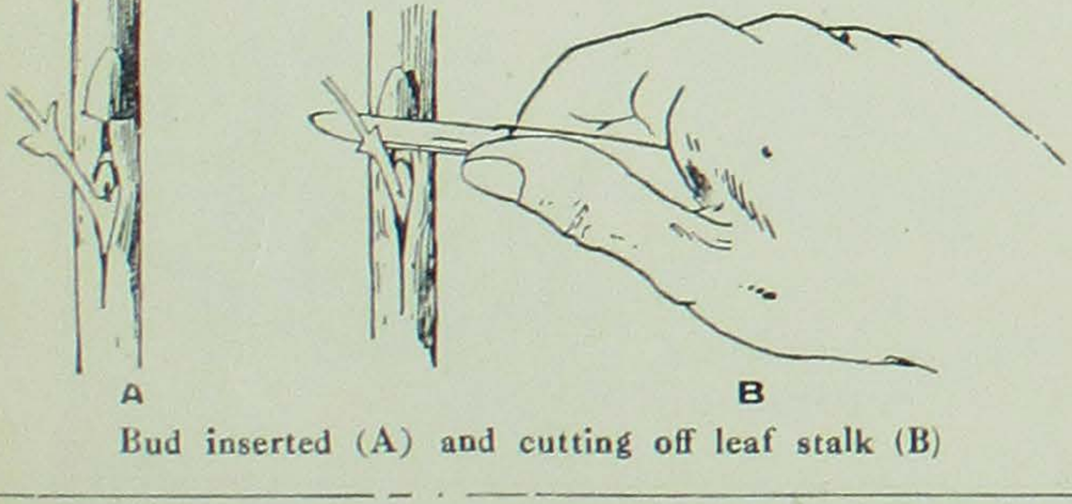
Shortening the leaf before cutting out the bud



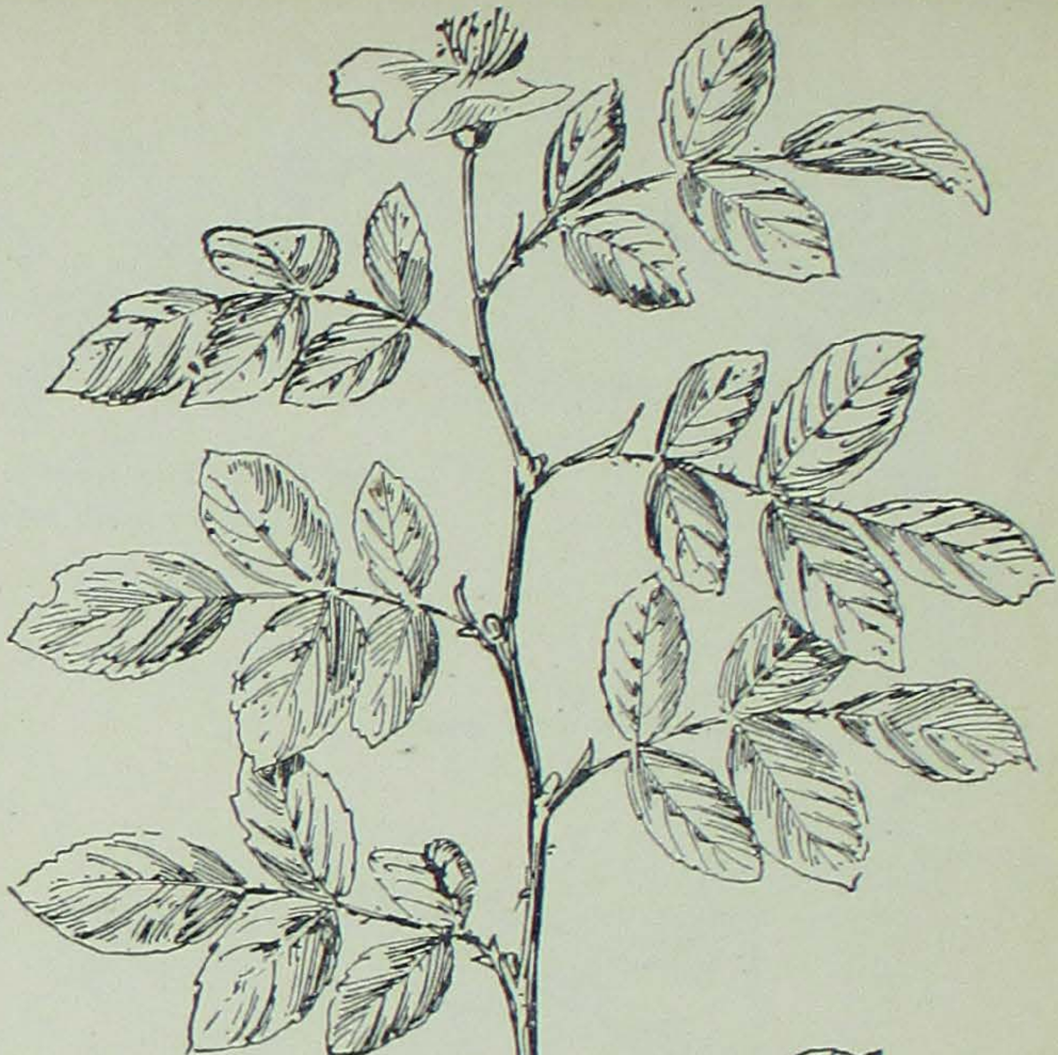
The work completed ; the bud tied in with raffia



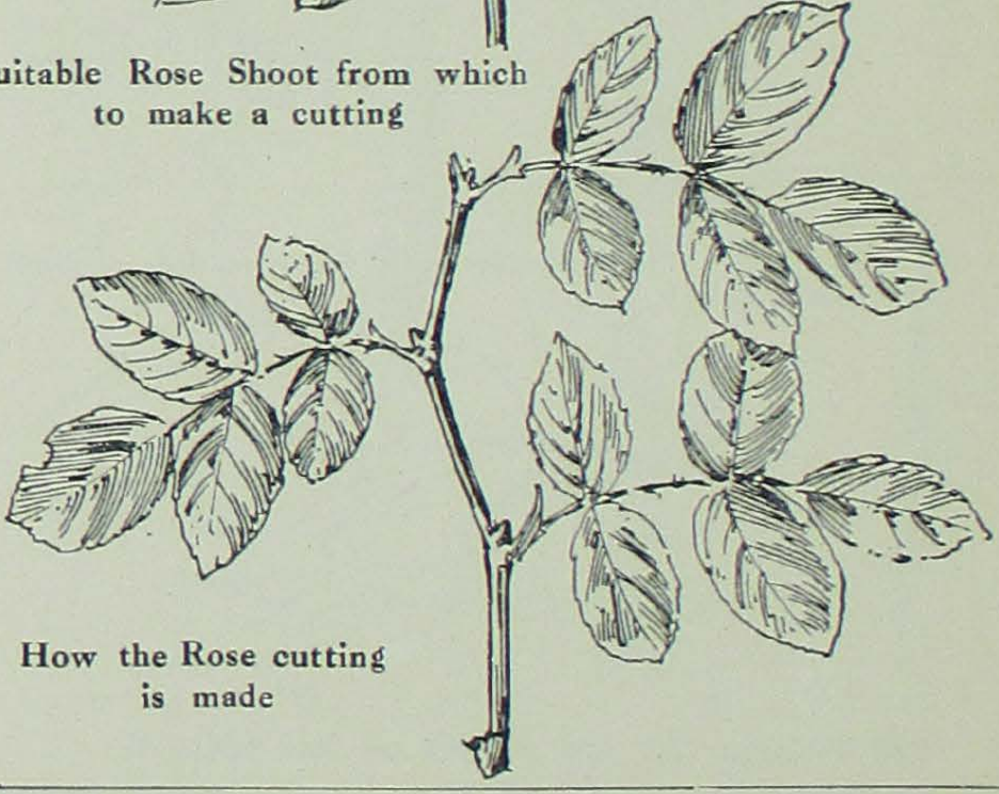
Raising the bark for insertion of bud



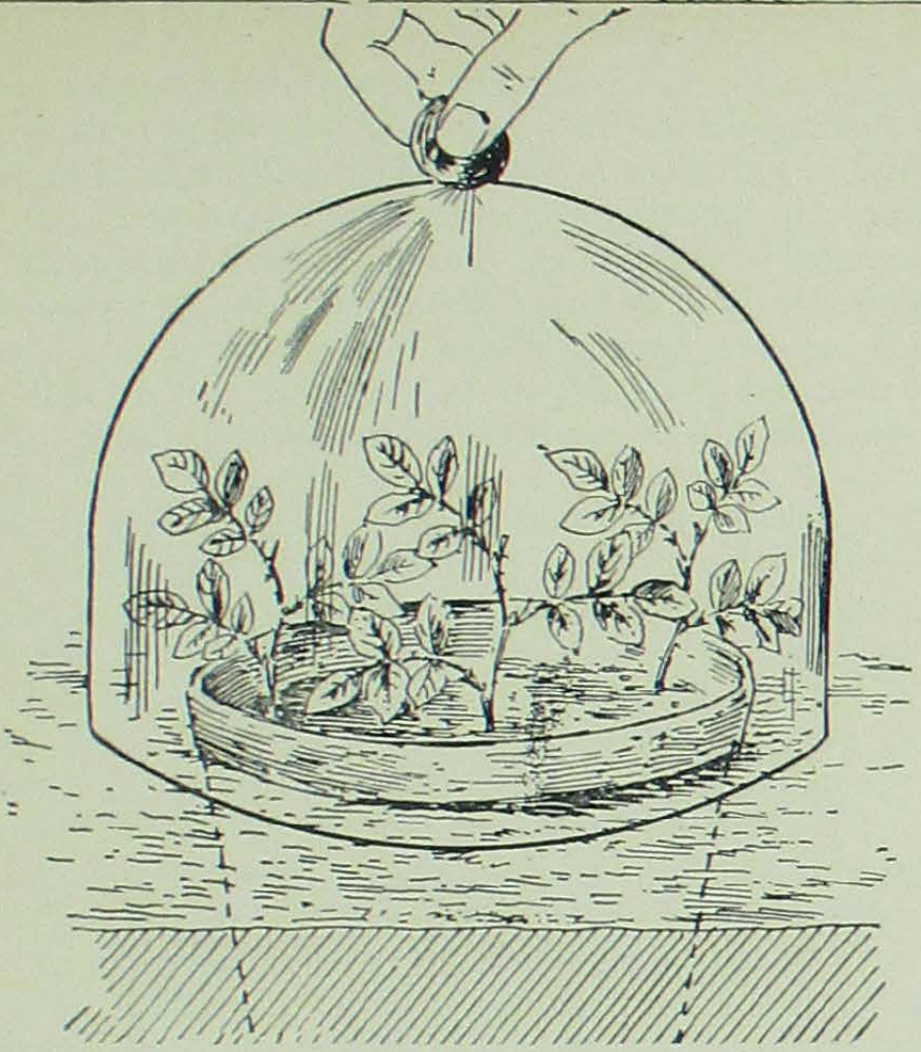
Bud inserted (A) and cutting off leaf stalk (B)



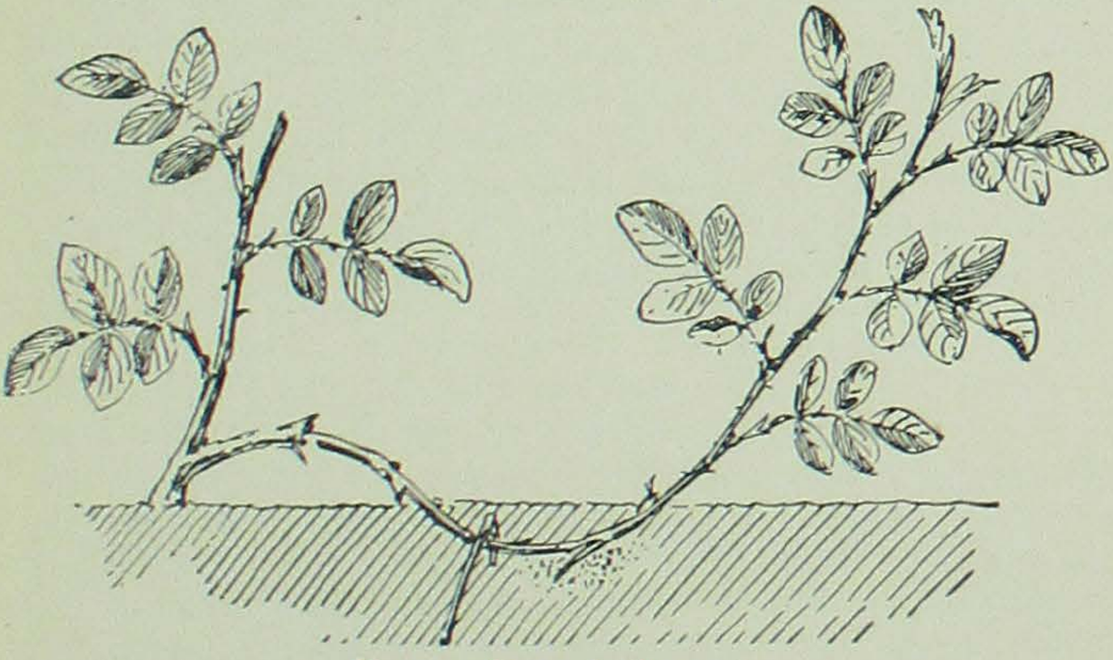
Suitable Rose Shoot from which to make a cutting



How the Rose cutting is made



If the cuttings are inserted in a pot of sandy soil, plunged in a hotbed, and covered with a bell glass, they will soon form roots



How a Rose is layered

ing rose cuttings, results equally successful can be obtained by inserting cuttings during July and early August, providing that the right kind of growth is selected. The most suitable growths for the purpose in question are those which have produced flowers, but care must be taken to see that the growth buds in the axils of the leaves are in a dormant condition. When prepared ready for insertion, each cutting should be sufficiently long to allow of at least two, and preferably three, leafstalks, whilst the flower end of the shoot should be removed, and if desired, the cuttings may be taken with a heel of old wood at the base.

A little bottom heat, such as that produced by a partly spent hotbed, will be found a great advantage in assisting the cuttings to root quickly, and if they are inserted in pots, the latter should be plunged in the hotbed and covered with a bell glass. Light sandy soil should be used, and a good layer of sand be scattered over the surface of the soil in each pot. The cuttings are inserted round the sides of the pots, care being taken to make the soil quite firm about the lower part of the stems. Shade the cuttings from the sun, and sprinkle with water occasionally to keep the soil evenly moist. When roots have been put forth admit air, and after a time remove the handlight.

Rose cuttings may be inserted in a shallow trench on a sheltered border out-of-doors in October and November. Place sand in the bottom of the trench and make the cuttings firm. The cuttings are made from well-matured shoots of the past summer's growth. Those nine inches long are best; two-thirds of each cutting ought to be beneath the soil.

Vigorous roses may be increased by layering as shown in the illustration. The shoot is slit and pegged into the soil in late summer or early autumn, and is left undisturbed for a year. It may then be severed and transplanted.

CHAPTER IX

The Lawn

THE brilliant masses of flowers which high summer brings in the flower garden are enhanced in charm if, as a relief from their rich display, the eye can rest upon the cool green of close smooth lawn. It is well worth trying to obtain a perfect lawn, for one of indifferent quality may detract from the beauty of the flower borders, whereas one that is in good condition adds to the fascination of the whole garden. If a lawn is well made in the first place it is not a matter of much difficulty to keep it attractive, but if badly made, its management entails considerable labour, and even then may not be altogether satisfactory.

In making a fresh lawn the amateur is advised to sow grass seeds instead of laying turf. It is the height of folly to purchase poor seed, for some of the grasses will be coarse and the mixture may contain a lot of clover and a proportion of weeds. The best time to sow seed grass is in September, whether early or late in the month will depend upon the weather. It is not wise to sow when the weather is hot and dry, as often happens early in September, but conditions are usually suitable about the middle of the month. Then the sun is losing power, and the nights are cool, so that the grass seeds find ideal conditions for quick germination. If the sowing is successful there will be an excellent sward by the following June. The seed should be sown thickly. from north to south and east to west, to make certain that the surface is wholly and regularly covered. Do not sow in windy weather, otherwise bare patches are likely to result.

Having prepared the ground by digging, and removing the roots of perennial weeds, obtain a fine tilth by means of fork and hoe. Then tread the soil moderately firmly, rake over, sow the seed, and finally rake and roll. Birds are less troublesome in autumn than in spring; nevertheless, it may be necessary to protect the seeds for a week or two by means of black thread stretched above the surface and supported by means of small sticks. A preparation called Horticol is said to prevent the attacks of birds, or fish netting may be used.

There will be little or nothing to do to the lawn until spring, except to roll it occasionally when the surface is fairly dry during autumn and winter. It need not be mown until March or April. This plan is preferable to that of sowing grass seed in spring; the grass has a better chance of making satisfactory growth during autumn than in spring and early summer, and the lawn will be ready for use by June, which is scarcely possible from a sowing in March.

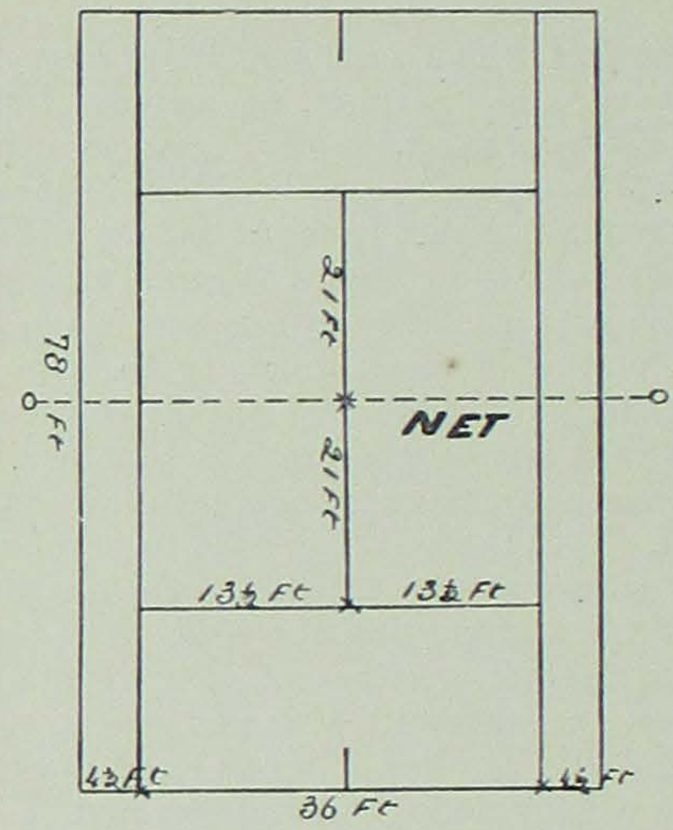


Diagram and measurements of Lawn Tennis Court

Providing timely attention is given subsequently, the maintenance of the lawn offers little difficulty. If vigorous weeds are allowed to develop, and bare patches to become pronounced, it is very troublesome to put matters right. As the weeds spread, so too does the grass become weakened; if, however, they are removed when young the work is much easier and no harm is done to the grass.

How to Destroy Weeds.—Daisies may be got rid of by the use of lawn sand; this ought to be applied in October and again in April. It has the effect of turning the grass brown for a time, but this soon recovers, and, indeed, improves afterwards, for the lawn sand has manurial value. Lawn sand may be made by mixing half a pound of sulphate of iron (copperas) and one and a half pounds of sulphate of ammonia with twelve pounds of sand; it is necessary that the chemicals be finely ground and that all the ingredients be well mixed together. The lawn sand is applied at the rate of two ounces per square yard.

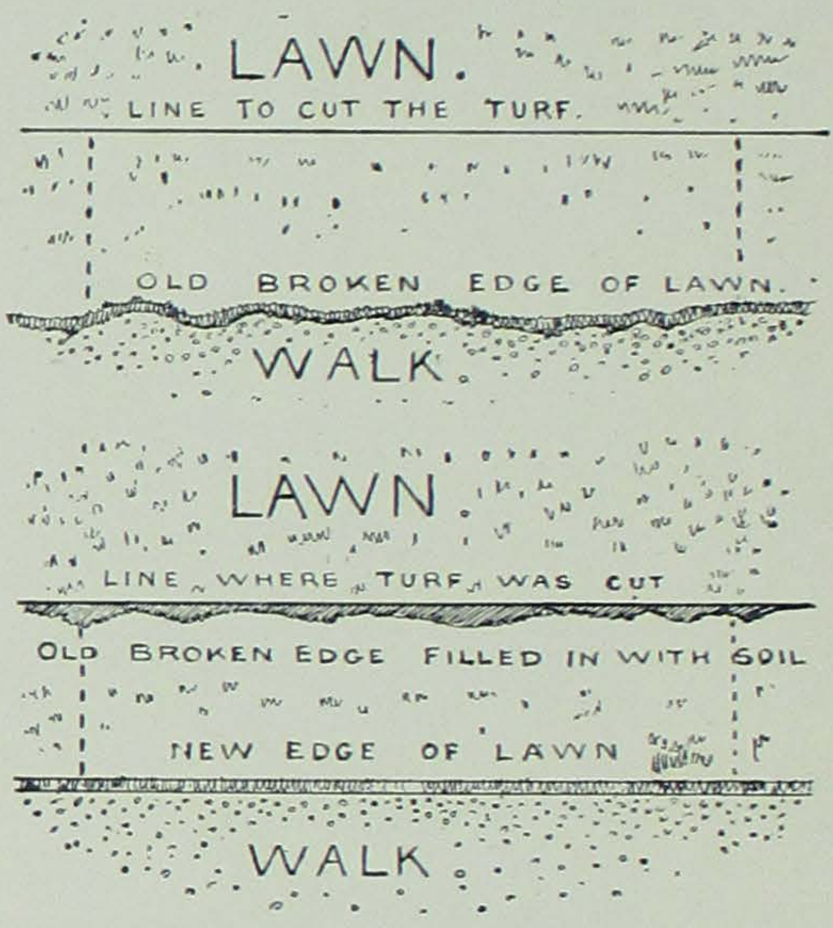
Tap-rooted weeds such as Dock, Dandelion and Plantain are best got rid of by dipping a wooden skewer in sulphuric acid and inserting this in the centre of each weed, or they may be dug out with a handfork or weed extractor. Surface-rooting weeds have very little chance to flourish if the sward is thick and close, and this can be maintained if attention is paid regularly to mowing, rolling and manuring.

Photo : C. H. Chandler]

Marking out the Lawn Tennis Court

Manuring the Lawn.—It cannot be expected that a lawn will remain in perfect condition indefinitely unless manures are applied from time to time. Basic slag is valuable for application in autumn, especially on heavy ground, though its use tends to promote the growth of clover. Alternatively bonemeal may be put on, at the rate of three ounces per square yard. Basic slag can be used at the rate of six ounces to the square yard. If yard manure is available, this provides an excellent dressing;

it should be scattered on the grass in January or early February, fairly thickly, though not to such an extent as to hide the grass altogether. The finer particles will have been washed out of sight by April and the rougher parts which then remain are raked off. An excellent mixture to put on the lawn in February or early March for the purpose of promoting vigorous growth consists of equal parts of nitrate of soda and sulphate of ammonia, scattered at the rate of half an ounce per square yard. In April and May Guano or Clay's Fertilizer may, with advantage, be sprinkled on the lawn in showery weather.



How a worn Grass-edge is remedied

The best way to renovate bare patches is to fork up the surface in September and then to sow grass seed. If, in addition, the new grass is watered in spring with a solution of nitrate of soda, half an ounce dissolved in a gallon of water, the sward will soon be restored.

Moss on the Lawn is often troublesome. Its presence indicates that the ground is poor, and the remedy is so to encourage the growth of the grass that the moss shall have no chance. It is necessary to rake off as much of the moss as possible, and in spring to scatter sulphate of iron, ¼ ounce per square yard, upon the mossy patches; after a fortnight water it every ten days or so during May and June with a solution of nitrate of soda, half an ounce in a gallon of water.

Mowing and Rolling.—When first cutting a lawn the machine should be set high, otherwise the blades are liable to damage the roots of the grasses. As the grass thickens and becomes consolidated the machine may be set to cut more closely. During summer an established lawn ought to be cut at least once, though preferably twice a week, and each mowing should be followed by rolling. Rolling may with advantage be carried out throughout the year whenever the surface is not sodden or hard; it does the lawn a great deal of good.

Fairy Rings are sometimes a nuisance on the lawn, and are difficult to get rid of. They are due to the presence of a fungus which, as it decays, enriches the grass and causes it to assume the rich green colour characteristic of fairy rings. Watering with a strong solution of sulphate of iron is likely to effect a cure, though it may be necessary to dig up and remove the soil containing the fungus, to a distance of 12 inches outside the ring.

Clover when present in reasonable quantity only is not objectionable, but it is apt to spread and supplant the grasses proper. It may be lessened by applying lawn sand in autumn and scattering nitrate of soda and sulphate of ammonia (half an ounce to the square yard) in spring.

CHAPTER X

Carnations and Pinks

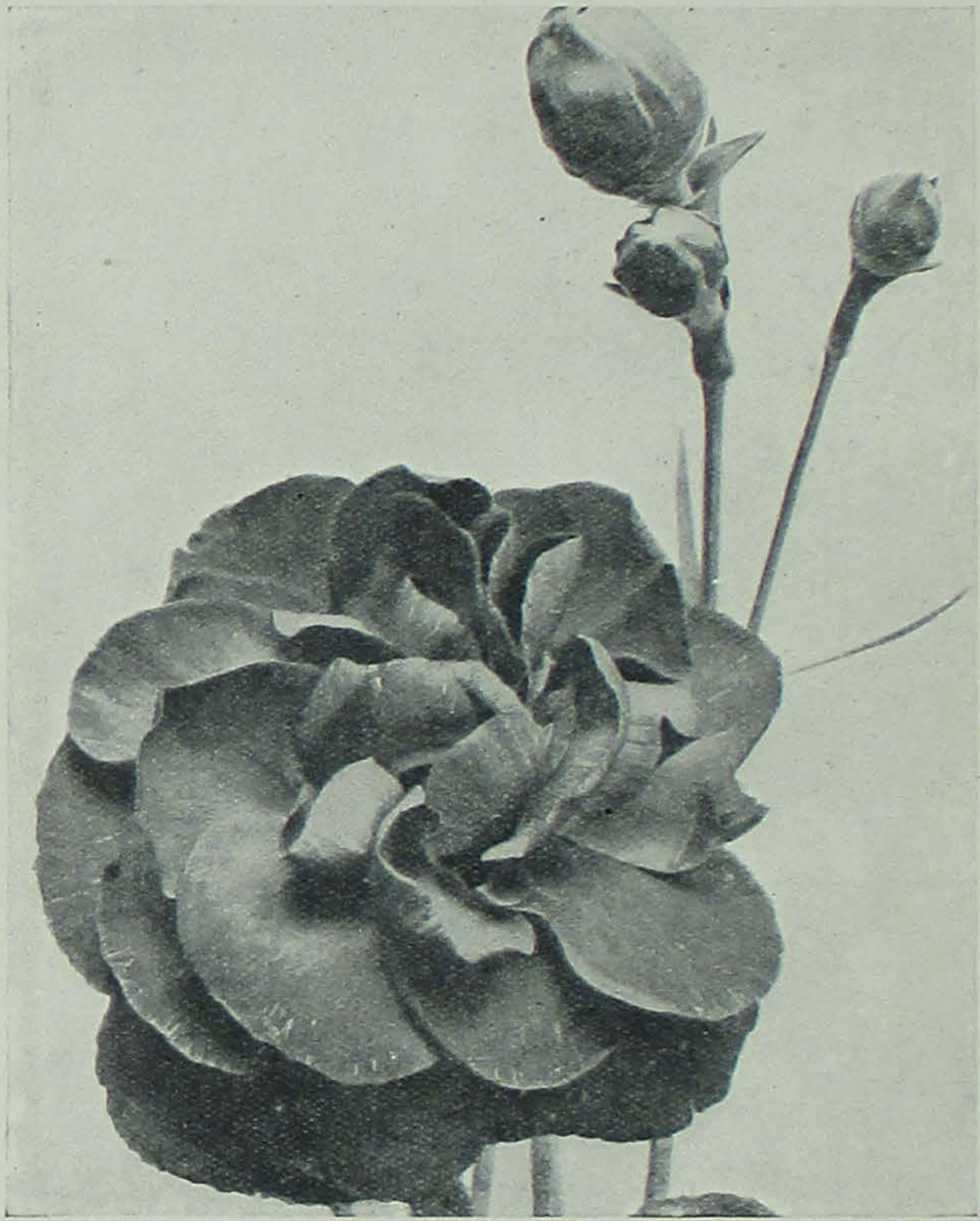
THE Border Carnation is among the finest of the old-fashioned flowers of English gardens, and it has kept pace with the times. Many beautiful varieties have been raised during recent years, and they are great improvements upon older sorts. The best of them are distinguished by perfectly formed flowers upon strong stems, calyces that do not generally burst (and therefore require no elastic band for their support), vigour of growth and fragrance. It is true that not all new Carnations are fragrant, though varieties possessing this characteristic are increasing in number.

The Border Carnation is hardy, a point which many amateurs apparently seem to forget, and the best time to plant, in the majority of gardens, is early in October. If the ground is particularly clayey and remains wet throughout the winter, it may be advisable to keep the plants in a frame until March; but, as a rule, autumn planting is preferable. The plants put out then become well rooted before winter, and if they do look rather forlorn in early spring, they quickly make fresh growth as the year advances, and yield a finer harvest of blossom than those kept in pots during winter.

Carnations thrive in ordinary soil, which ought to be dug deeply before planting takes place, and a little bonemeal may, with advantage, be well mixed in the ground. As a rule, it is found that Border Carnations thrive better without further artificial manures; they do, however, benefit if watered in spring and early summer, once every ten days or so, with liquid made from farmyard manure and diluted with water until it is of pale yellow colour.

Carnations ought to be planted about 15 inches apart; if put closer than this it becomes a difficult matter to get among them for purposes of layering, staking, etc. The plants should be made firm when they are put in and be at such a depth that

Carnation Borders separated by Grass Path they are quite steady in the ground. It usually suffices to plant so that the lowest leaves are partly covered. They require no attention during winter. In spring, as soon as the ground gets fairly dry, the soil between them should be hoed once a week for the double purpose of destroying weeds and of keeping the surface soil loose.

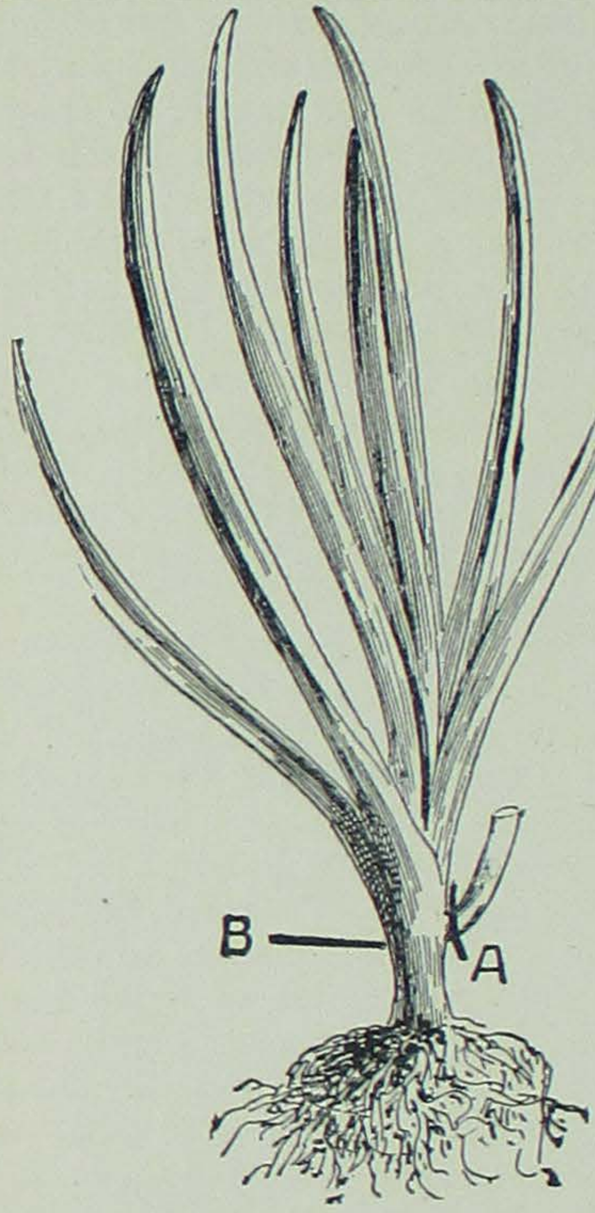


Border Carnation Elizabeth Shiffner, maize colour
(From a photograph lent by Mr. James Douglas.)

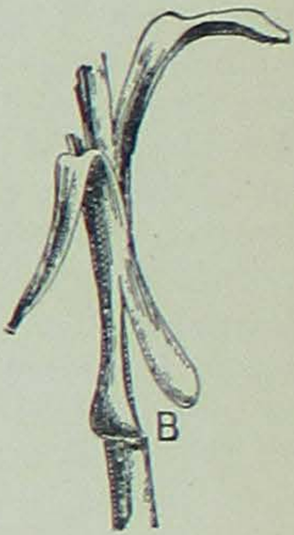
Staking.—In May, the flower stems make their appearance, and staking becomes necessary. The best support is found in the bamboo canes about four feet long; if these are inserted firmly in the soil, not so near the Carnations as to damage the chief roots, there will be rather more than three feet of stick above ground. There is then no chance of the flower stems overtopping the sticks when the flowers are open, consequently the latter will show to the best advantage. If the flower stems do not reach quite to the top of the stakes (and some varieties grow much taller than others), it is an easy matter to shorten the stakes as is necessary. Green or white raffia or soft thin string may be used to tie the plants to the sticks; the tying material is passed twice round the stick, and the stem of the plant is then loosely attached to it. Needless to say, as the stems increase in height further tying will be necessary. It is advisable to begin in good time, otherwise the flower stems are liable to become crooked and they cannot be made straight again. Even when the Carnations are grown for the purposes of garden decoration it is wise to remove some of the buds, and more particularly the small ones, one of which usually is found immediately beneath each of the chief buds.

Layering.—As everyone knows, the Border Carnation is commonly increased by means of layers. The work of layering ought to commence early in July, or even late in June, for the sooner the layers are rooted, the finer plants will they be when the time comes to transplant them in October. The method adopted is well shown in the accompanying illustration. The lowest leaves are stripped off the shoots to be layered, and a slit is made in the stem at four or five joints from the top of the shoot. This is pegged down into a compost of sifted loam, leaf soil and sand by means of a layering pin or strong hairpin, inserted close to the base of the lowest leaf, so that the slit remains open. The base of the layer is then covered with prepared soil; this, however, ought not to be mounded up to such an extent that moisture will run off. It is better to remove a little of the border soil, and replace it with prepared compost, than to make a heap of new soil on the border. The layers must be kept moist in dry weather and will then be splendidly rooted early in October.

Many gardeners lift the rooted layers each autumn and plant a fresh bed, thus practically treating the Carnation as an annual. This, however, is not the way to obtain an abundance of flowers; two or three-year-old plants yield far more blossoms than those one year old do. It is therefore advisable, when the sole purpose is to grow the plants for garden display, to leave them undisturbed for two or three years. After they have first blossomed it is best, I think, to layer the shoots but not to take them up; the following year the plants will be so full of shoots that layering will probably prove out of the question and they must be left as they are. They will be rather untidy the third year, but will yield an excellent display, though the flowers will not be so fine as those of one-year-old plants.

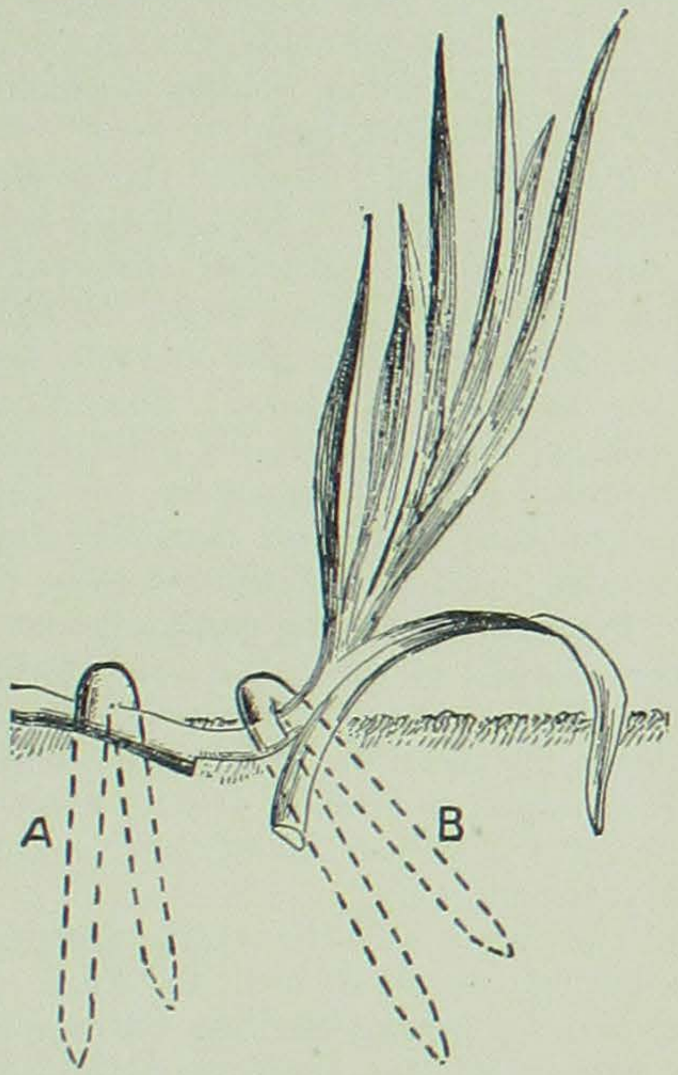


Rooted Carnation layer ready for planting, the piece of stem at A is cut off; B shows depth at which to plant



How the Stem is slit

Border Carnations from Seed.—Another way of obtaining a profusion of blossom is to raise Border Carnations from seed. This is quite a simple matter. All one has to do is to obtain the best seed and sow it in April in a box of sifted compost—leaf-mould, loam and sand. The seeds are sown thinly and covered lightly. If the box is placed in a cool frame the seedlings will show through in two or three weeks, and as soon as they are large enough to take hold of conveniently, they should be potted separately in small pots, or be planted in a bed of well-dug soil. In either case they will be ready for planting permanently out-of-doors in late summer, the sooner the better, providing they are nicely rooted. Seedlings develop into large plants and ought to be put about two feet apart. The flowers of some of them may be single (though, if the best seed is obtained, the singles will not be numerous),and others will be worthless from the Carnation fancier's point of view, but some will be first-class flowers, and practically all will blossom abundantly.



Pegging down the layer. A indicates peg wrongly inserted; B shows it placed properly

The Best Border Carnations.—The following are some of the very best varieties of modern Border Carnations :—*Dark Red and Maroon.* Gordon Douglas, Bookham Clove, Helen Countess of Radnor, Basuto, Agnes Sorrel, and Zulu. *Red and Scarlet:* Cardinal, Fujiyama, Brilliant, and Bookham Scarlet. *Pink and Rose:* Mrs. Robert Gordon, Lady Hermione, Mrs. Robert Berkeley, and My Clove. *Yellow:* Border Yellow, Solfaterra, and Cecilia. *Buff and Terra Cotta:* Elizabeth Shiffner, Mrs. Griffith Jones, Mrs. G. A. Reynolds, and Mrs. Robert Morton. Other beautiful self-coloured Carnations are Miss Rose Josephs, wine red; Tantallon, reddish chocolate; Ellen Douglas, silvery grey; and Valiant, purple.

White Ground Fancies: Daisy Walker, charmingly marked with scarlet; Delicia, marked with crimson and pink; and Lord Kitchener, heavily marked with red. There are innumerable *Yellow Ground Fancies*, such, for example, as Queen Eleanor, marked with scarlet; Melton Prior, with scarlet marking; Linkman, marked with scarlet; Rony Buchanan, with rose-coloured marking; and John Ridd, marked with pink or rose. Other charming Fancy Carnations are Mrs. Andrew Brotherstone, marked with white on purplish crimson; Banshee, red and lavender; and Mrs. Arthur Cruwys, purple and scarlet.

Pinks are charming garden flowers, and any reader having a spare border, of which the soil is fairly light, might well devote it to Pinks. Even when not in bloom, the grey-leaved tufts are not unattractive, and it is possible by planting bulbs, such, for example, as Spanish Iris for early summer, and Glory of the Snow (Chionodoxa) for spring, to prolong the season of bloom very considerably.

The best way to start growing Pinks is to purchase a packet of good seed in April or May, and sow it as advised for raising seedling Carnations. When a bed of Pinks is established, the simplest method of increase is by means of pipings, which are similar to cuttings, except that the tips of the shoots are pulled out, by means of a sharp jerk, instead of being cut across at the base as in preparing a cutting. If inserted in pots or boxes of sifted sandy soil placed in a closed frame for two or three weeks, they will soon form roots. Another way of increasing Pinks is to take up the plants early in September, pull them into pieces, each having a few roots attached, and replant the best of them. As an edging plant there is probably still nothing better than the old white Pink, Mrs. Sinkins. There are innumerable named varieties of Pinks, but for a general collection, seedlings of a good strain are altogether satisfactory.

Perpetual Flowering Carnations have made great progress during recent years, and are now employed to some extent for planting out-of-doors. It is true that they blossom throughout the season, and in soil that is not very heavy they pass through the winter safely. They are not, however, so attractive as Border Carnations for the open garden, owing to the straggling habit of growth. If it is intended to fill a bed with Perpetual Carnations, plants in bud must be put out in May; if younger plants are used, they will not commence to bloom until too late. Plants that have flowered in the greenhouse during winter may be put out-of-doors in May; they will continue to produce flowers during summer, though the plants are tall and ungainly. They should only be put on a reserve border for the sake of their flowers for cutting.

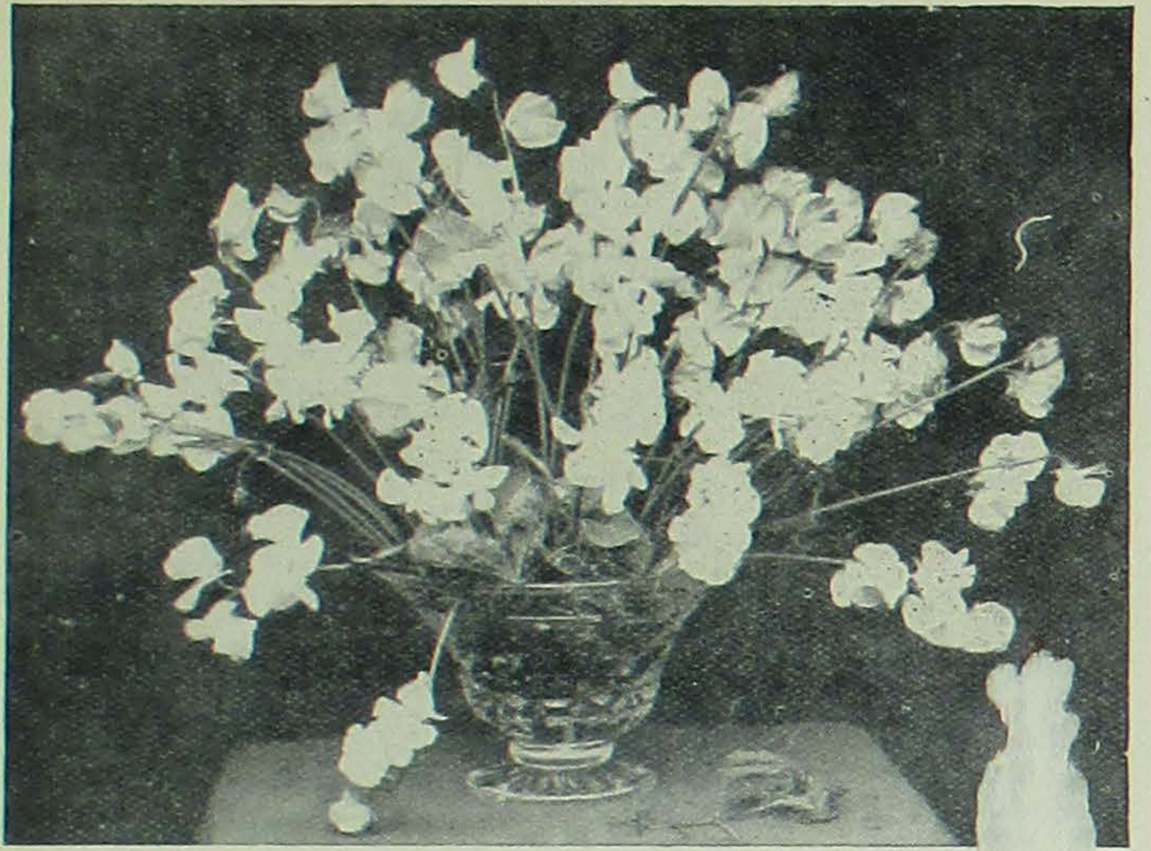
CHAPTER XI

Sweet Peas

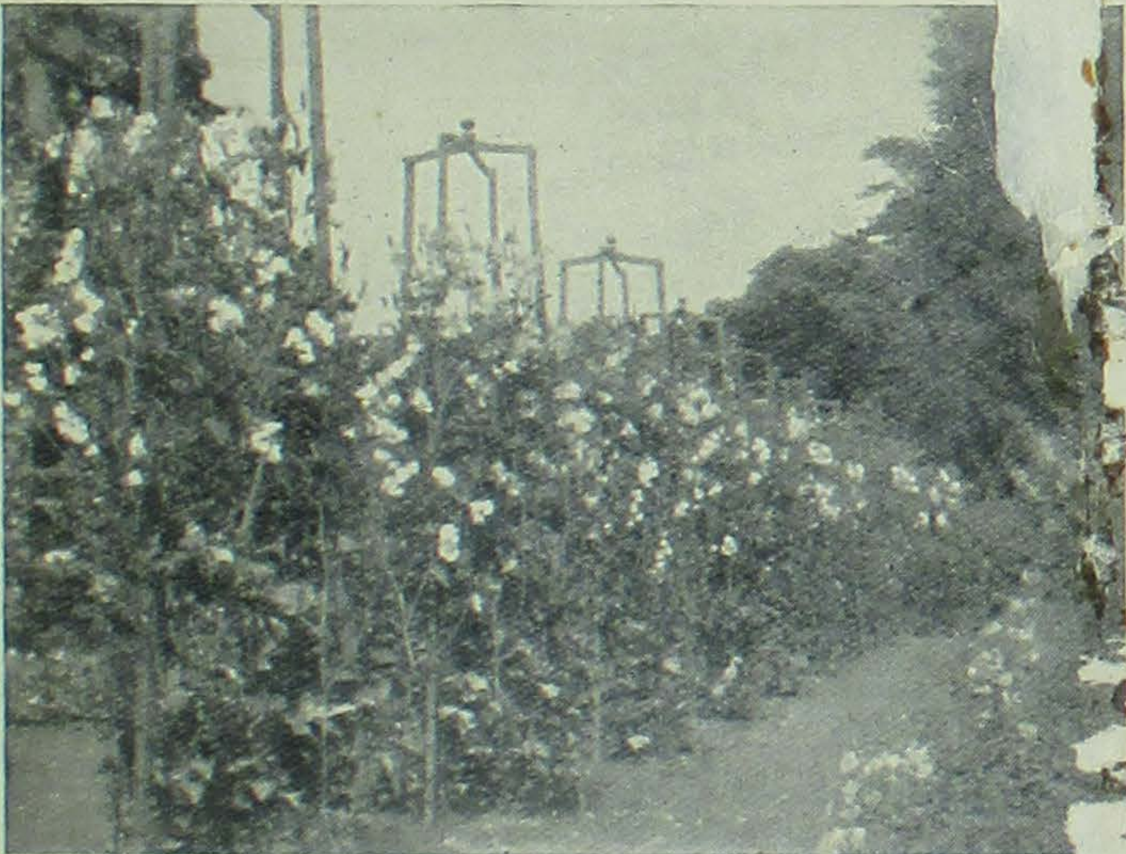
It is a far cry from the Sweet Pea of ten to fifteen years ago to the varieties of the present day, while the methods of cultivation, too, are different. Formerly it was the custom to sow a row of the plain petalled or grandiflora varieties in the kitchen garden, or by the side of the path in the flower garden, where they were given the minimum of attention and invariably flourished. Nowadays we grow almost exclusively the waved varieties, sowing the seeds in pots in spring or the previous autumn, and planting out in April. Further, we " stop " the shoots when they are about 6 inches high and allow one, two, three or more stems to grow, according to the vigour of the variety. Instead of using the old-fashioned hazel sticks as support, we tie each stem to a bamboo cane and disbud superfluous shoots and flowers. In this way, if we are fortunate, we obtain four or five flowers on strong stems 15 to 18 inches long, while growth is luxuriant. We may not, however, be fortunate, especially if an elaborate trench is prepared and the soil is enriched with various artificial manures in addition to yard manure, for one of the several diseases to which sweet Peas are subject may attack the plants. All these things we do if we grow this beautiful flower in the up-to-date fashion.

Not all gardeners, however, are Sweet Pea enthusiasts, and they may still sow seeds in the old-fashioned way, choosing either the old, plain-petalled or the new, wavy-petalled varieties. Nothing can be simpler. Late in February or early in March the seeds are put in a double row, and covered with from 1 to 2 inches of soil, each seed being about 2 inches from the next. As soon as they are well above the ground, hazel sticks are put in each side of the row. Black thread stretched from stick to stick will keep the birds away.

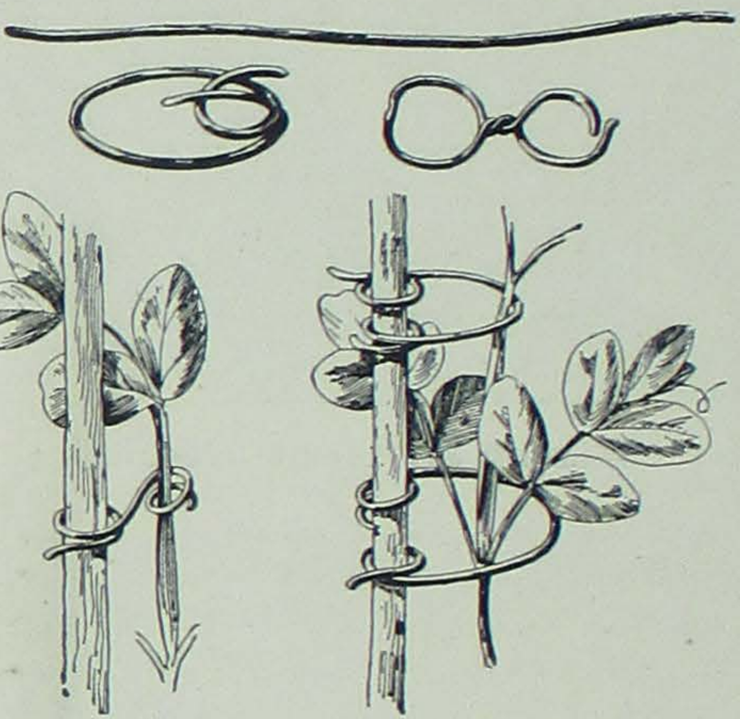
Sowing in Autumn.—There is, however, a middle course to be commended to those who, while not prepared to go to the



Sweet Peas are charming for Home Decorat



Clumps of Sweet Peas in a Devonshire Garden trouble required to produce Sweet Peas for exhibition, yet like to grow them well. The seeds should be sown singly in pots in early October or late September, the seedlings being kept out-of-doors until really bad weather sets in. They are then placed in a cold frame and kept perfectly cool; only in case of hard frost is it necessary to close the frame. Water must be given sparingly; when the soil is fairly dry, and not until then, it should be moistened thoroughly, no more being applied until the soil again gets fairly dry. The plants thus need little attention during winter. As spring advances, the frame light may be removed altogether, and in April the seedlings are planted out. An alternative plan is to sow the seeds singly in small pots in January in a greenhouse temperature of about 50 degrees. The seedlings must, however, be "grown cool."



Lead Clip for fastening Sweet Pea stems to their support. The Clip can be twisted, with ease, to any shape

Those who have light soil to deal with might with advantage sow the seeds out-of-doors in autumn, where the plants are to bloom, but on heavy soil this is not advisable, because the losses in winter are likely to be heavy. It will be found that pinching off the top of each plant in spring induces it to produce several fresh shoots stronger than the original one, and I would recommend even those who grow for garden display only to do this. It then remains but to plant the seedlings 6 or 8 inches apart, and stake them in the ordinary way with hazel sticks. Finer

Sweet Peas, finely grown, in a Lancashire Garden plants are likely to result from this method than by sowing out-of-doors in spring, and the ordinary garden-lover may, with advantage, copy the methods of the Sweet Pea specialist so far.

Preparing the Ground.—It is a mistake to put the plants in too rich ground. If the position is deeply dug in autumn, and basic slag at the rate of 6 ounces to the square yard is mixed in at the time, together with a little yard manure if this is available, there is no need for further preparation. In spring, a week or two in advance of planting, it is advisable to scatter a little superphosphate or bonemeal on the surface and fork it in.

Sweet Peas look well when grown in clumps, and are then suitable for grouping in the mixed border Space can often be found for a few clumps when a row cannot be accommodated. The period of flowering of Sweet Peas, as of most other flowers, is prolonged by cutting off the blossoms as they fade; if seed pods are allowed to form, the plants soon cease to make further growth. It is not advisable to water Sweet Peas before June, and then only if the weather is hot and the ground dry. When water is given it should be in such quantity as to soak through to the roots and keep them moist for some time. Sprinklings of soot every ten days or so from May onwards do good.

Good Varieties.—Among the hundreds of varieties now obtainable the following are some of the best:—Afterglow, shades of rose and blue; Constance Hinton, white; Hawlmark Pink, pink; Dobbie's Cream, cream; Doris Usher, cream pink; Dorothy Eckford, white (*grandiflora* type); Edith Taylor, salmon rose; Edna Unwin, orange-red; Flora Norton Spencer, blue with purple tinge; Helen Lewis, orange rose; Jean Ireland, buff and rose; John Ingman, carmine rose; Dobbie's Maroon, maroon; Lavender George Herbert, lavender; Mrs. T. Jones, blue; Maud Holmes, crimson; Mrs. Cuthbertson, rose-pink and white; Mrs. Hardcastle Sykes, pink; Mrs. W. J. Unwin, flaked with red on white ground; Queen of Norway, mauve; Rosabelle, rose; Royal Purple, purple; Royal Scot, scarlet; The President, orange-red; Annie Ireland, white with coloured margin; J. Cornwell, V.C., violet blue; Mrs. Tomlin, crimson scarlet; R. F. Felton, lavender.

CHAPTER XII

Dahlias for the Garden

There has been a marked improvement in the Dahlia during recent years, and many varieties can now be confidently recommended as flowers for the garden. Many amateurs have been disappointed in the Dahlia, from the point of view of its value for garden decoration, because they have planted only such Cactus Dahlias as grow very tall, and of which the flowers are weak-stemmed and partly hidden by luxuriant foliage.

The Dahlia is commonly propagated by means of cuttings which are produced by the old roots when these are placed in a warm greenhouse in spring. If the fresh shoots are taken off, cut beneath a joint, and inserted in pots of sandy soil placed in a closed frame in the greenhouse, they soon form roots. They are then gradually hardened to the ordinary greenhouse temperature, and are potted singly in small pots. The time to plant them out-of-doors is late in May or early in June; it may be necessary to repot the young plants into 5-inch pots before that time. It is, in fact, better to do this, and plant them out-of-doors a few weeks later, rather than to undertake the work before the weather is suitable.

General Hints.—Dahlias must not be crowded, for they make vigorous growth, and it is necessary also to stake them firmly, otherwise the shoots are liable to be broken off by the wind. It is not advisable to enrich the ground if it is in what the gardener calls " good heart " ; growth is sufficiently vigorous in ordinarily well-tilled ground. As the plants progress, the shoots must be looped to the supporting stakes, and it may be essential to remove some of them to prevent overcrowding. When the tops are blackened by frost in autumn it is usual to lift the roots, and, after placing them under cover for a few days to dry, to store them in boxes or pots in a frost-proof place for the winter.

In mild districts and in gardens in which the soil is light, the roots are often left in the ground. Sometimes they start into growth satisfactorily in spring, but more often they do not, so it is wise to lift and store any roots upon which value is placed. In spring, late in April or early in May, the old roots can be planted just as they are, or, in February and March, may be placed in warmth to provide cuttings as already explained. The cuttings produce the finest flowers, but the old roots yield a greater number of smaller blooms.

The best Dahlias for garden display are the Single, Decorative, Collarette, and Paeony-flowered. The chief of the remaining types are also of value, namely, the Pompones, Cactus and Show. It is necessary in selecting Cactus Dahlias to choose the varieties with care, for some are so much better than others. The Show Dahlias, which produce large, rounded, double flowers, take up a lot of room, but they bloom well. The Pompones are great favourites with some people and they are to be recommended for the garden. The four classes first named are, nevertheless, the best for this purpose.

Singles.—Probably the Single Dahlias surpass all others as garden plants; they blossom so abundantly and the flowers are especially useful for decorative purposes when cut. Some of the best singles are Cardinal, bright red; Darkness, dark crimson; Fuji San, orange yellow; Kitty, rosy mauve; Mikado, scarlet and yellow; Owen Thomas, red and yellow; Huntsman, orange red; Snowdrop, white; and Winona, maroon.

Cactus.—Suitable Cactus Dahlias are Amos Perry, crimson scarlet; Conquest, crimson maroon; Duchess of Sutherland, blush; Effective, amber and rose; Harbour Light, orange red; Glow, yellow and apricot; Mrs. H. L. Brousson, salmon and yellow; Mrs. Macmillan, white and mauve; Sweetbriar, pink; Sportsman, scarlet; William Marshall, orange yellow; and Vivid, orange red.

Collarette.—The Collarette Dahlias are distinguished by having an inner row or collar of small petals, and as these are often of a colour distinct from the remainder of the flower, the effect is striking. A few good ones are Ami Cachat, orange red, yellow collar; Countess Dugon, white marked with rose-purple; Diadem, rose, white collar; Henri Farman, bright red and primrose; Prince of Orange, orange and yellow; Maurice Rivoire, maroon rose, white collar; St. Abbs, crimson and pale yellow; Ville de Schildt, yellow; Tuscar, crimson and white.

Paeony-flowered.—Most of the Paeony-flowered Dahlias are vigorous plants, and considerable space is needed to display their decorative value properly. They are suited for planting at the back of the mixed border or in shrubbery borders. Some of the best are: Beacon, scarlet; Geisha, scarlet and yellow; Juliet, salmon and yellow; Mannheim, orange-red; Holman Hunt, crimson; King Leopold, light yellow; Titian, rose purple. Among the new varieties of Paeony-flowered Dahlias are some of dwarfer growth, of which the following form a selection: Amber Queen, amber with scarlet shading; Codsall Gem, yellow; Dormouse, crimson; Europe, orange; Hebe, pink with mauve shading; Lord Milner, yellow and blush; Mafeking, fawn and rose; Old Gold, deep yellow; Primrose Queen, pale yellow; Salome, orange buff; Seraphine, yellow; Titian, rose; White Flag, white. These are of an average height of four feet.

Decorative.—The class known as Decorative Dahlias provides several excellent varieties for the garden. A few of those especially to be recommended are Brentwood Yellow, yellow (2 feet); Barlow's Bedder, scarlet (2½ feet); Crawley Star, rose (4 feet); Delight, pink and yellow (3½ feet); Jeanne Charmet, pink (3 feet); K. A. Victoria, white (3 feet); Mont Rose, rose (3 feet); Reginald Cory, crimson and white (2½ feet); and White Star, white (4 feet).

Pompone.—Good Pompone Dahlias for the garden are Bacchus, bright crimson; Daisy, salmon yellow; Darkest of All, maroon; Dewdrop, white tipped with lavender; Douglas, dark crimson; Hecla, white; Ideal, yellow; Midget, salmon pink; Nerissa, rose pink; Queen of Whites, white; Ruby, ruby red; Tommy Keith, red tipped with white.

Show.—Of the Show or large double varieties the following might be chosen; Crimson King, crimson; David Johnson, salmon and rose; Diadem, crimson; Gracchus, orange yellow; John Walker, white; Merlin, orange red; R. T. Rawlings, yellow; Peacock, maroon with white tips; and Sunbeam, buff.

The Star Dahlias have recently come into prominence; the plants are free blooming, and the single flowers are of varied and pleasing shades of colour.

CHAPTER XIII

Some Florists' Flowers

Begonia.—The Tuberous Begonia is one of the finest flowers for summer planting out-of-doors, or for growing in pots in the greenhouse. The plants are not at all difficult of management, the flowers are of brilliant colouring, and the season of blossom lasts throughout the summer. If seed is sown in a heated greenhouse in January, plants to flower the same year are obtained. In the absence of this accommodation the amateur must purchase a few roots in March, place them in boxes filled with leaf-mould, and cover them slightly with similar material. If kept moist and in a temperature not lower than 50 degrees, they will soon start into growth ; when the shoots are an inch long the roots are potted separately in 3½-inch pots. If grown in a shady greenhouse until late in May, and subsequently hardened off, they will be ready for planting out-of-doors early in June. Or they may be repotted into larger pots to be kept in the greenhouse during summer.

The Tuberous Begonia ought to be planted in a partially shaded position rather than in full sunshine ; it grows better under such conditions, and the flowers last in beauty longer. The plants need no attention during summer except that weeds must be destroyed and the soil between the plants ought to be hoed frequently. In autumn, when the leaves begin to fade, the tubers are lifted, dried, cleaned and stored in boxes or pots of sand for the winter. They must be in a frost-proof place, though, if well embedded in sand, they will survive in an unheated greenhouse, as I have often proved. Care must be taken to put the roots where water will not fall upon them ; they ought also to be kept away from hot-water pipes. In February or early March the roots are taken out of the sand, and started into growth in shallow boxes of leaf-mould, as already advised.

The stock of Begonias may be increased by severing the tubers as soon as they have started into growth, potting the separated portions and keeping them in a propagating case for a week or two. Or cuttings may be formed by removing some of the young shoots, when they are about 2 inches long, and placing them in pots of sandy soil and keeping them in the propagating case until rooted. There are many named varieties of the Tuberous Begonia, but seedlings are so beautiful that it is not necessary for the amateur to grow any others unless he wishes to make a special feature of this flower.

Canna or Indian Shot.—This is an ornamental plant, both in foliage and in flower. Some of the varieties have handsome, bronze or reddish leaves, and the flowers are chiefly of orange, red, yellow and allied shades of colour. The Canna is a half-hardy perennial, and may be kept safely through the winter in a greenhouse temperature of not less than 50 degrees. Cannas form a handsome bed in the garden during summer, and remain attractive until autumn. The roots are taken up in early October, all fading leaves being removed, and the growth cut off to within 8 or 10 inches of the base. They are then placed in pots or boxes in the greenhouse and given water until the stems have died down. During winter, water must be given occasionally, but only sufficiently often to keep the soil slightly moist. In February or March the plants are divided and repotted in a compost of loam, leaf-mould and sand, and in a temperature of 50 to 55 degrees will soon start into growth. In May they are hardened off preparatory for planting out-of-doors in June. It is wise to choose a partially sheltered spot for the Cannas, otherwise their leaves are liable to become spoilt by wind. They need an abundance of water in dry weather.

Cannas may be raised from seed sown in spring in a heated greenhouse. This sometimes takes a long time to germinate, and for this reason it is usually soaked in water for twenty-four hours before sowing.

Border Chrysanthemum.—There is probably no plant more easily grown than the border Chrysanthemum, varieties of which, if a careful selection is made, will bloom from early August until October and November. The earliest flowering sorts are not, however, so useful as later ones; in fact, when so many other beautiful summer flowers are available one can do very well without Chrysanthemums. In late summer and autumn they are, however, invaluable. They are useful for planting in the flower border to succeed such summer flowers as Sweet William, early annuals, Snapdragon, etc.

They are hardy plants, and the simplest way to grow them is to take up the roots in March, divide them and replant the best of the separated pieces on a reserve border. Still further increase may be obtained by means of cuttings, which form roots readily in pots or boxes of sandy soil in a frame. Those who aim at growing the Border Chrysanthemum to perfection take up a number of roots in late autumn and place them in a bed of soil in a frame for the winter. In spring, cuttings appear in quantity and are taken off and treated as described. The rooted cuttings are planted on a reserve plot in April, and in June or July are transferred to their permanent positions.

Chrysanthemums are easily raised from seed sown in a warm greenhouse in January. The seedlings are potted in 2½-inch pots when an inch or two high, and subsequently are repotted into pots 5 inches wide. A compost of loam, with a little leaf-mould, soot and sand, is suitable. In July they will be ready to plant in the border. It is not, as a rule, necessary to " stop " the shoots of Border Chrysanthemums grown for the sake of their display in the garden. But such plants as do not branch naturally may be " stopped," providing the work is done not later than June.

Good varieties.—The following form a selection of the best Chrysanthemums for planting out-of-doors. The month in which they bloom is indicated.

August.—Caledonia, ivory white (2 feet); Francis, bronze-red, (2 feet); Gertie, salmon-pink (1½ feet); Holmes' White (2 feet); Tottie, reddish-orange (2½ feet); Touraine, porcelain, very beautiful (2 feet).

September.—Mrs. A. Thompson, deep yellow (2½ feet); Miss Birchfell, pink with gold centre (2½ feet); Mignon, rosy-mauve (2 feet); Mabel Roberts, deep pink (3 feet); Lillie, pearl pink (2 feet); Le Pactole, bronze yellow (3 feet); La Yonne, pink with gold points (2½ feet); La Garonne, terra-cotta (2 feet); Keith, rose-pink (2 feet); James Bateman, rich clear pink (2 feet); Hector, mauve-pink (3 feet); Diana, deep orange, shaded gold (2½ feet); Crimson Diana (2½ feet); Champ d'Or, yellow, bushy (2 feet); Belle Mauve, mauve, lovely (2 feet); Aquitaine, salmon-bronze, (2½ feet); Tonkin, reddish-orange (2 feet); Savoie, pure white (2½ feet); Rosie, terra-cotta (2 feet); Roi de Precoces, rich crimson (3 feet); Provence, pink with gold points (2½ feet).

October.—Golden Glow, yellow (3 feet); Etoile d'Or, yellow (2 feet); Champagne, deep red (2½ feet); Bouquet Blanc, white (2 feet); Mrs. E. V. Freeman, deep crimson (2 feet); Le Cygne, pure white (3 feet); Petite Jeanne, white, shaded mauve (2 feet); Lorraine, deep crimson purple (2 feet).

Pentstemon.—This is an invaluable flower for late summer; the plants come into bloom in July and August, when many other border flowers are past their best, and they are then most welcome. Many of the Pentstemons are hardy and may be left out-of-doors throughout the winter, except in cold gardens and on heavy soil. It is, however, scarcely worth while to grow the florist's varieties a second year, because young plants are so easily raised from cuttings and yield finer blooms than old ones. If cuttings are taken in early September, placed in pots or boxes of sandy soil and kept in a closed frame for two or three weeks, they will form roots without difficulty. They must be syringed daily in bright weather, and should be shaded from bright sunshine.

A little air ought also to be admitted to the frame for a little while each day. The cuttings may remain in the pots or boxes in a cold frame until early spring, though in severe weather it is advisable to give some protection. In February they are potted separately in 3½-inch pots; they will then be well rooted and ready to plant out in June.

Some of the smaller varieties are, I think, better suited to the amateur than those having large flowers. They make charming little bushes and bear an abundance of blossom. A few of these are Newbury Gem, Southgate Gem, and Myddelton Gem.

Pentstemons may be raised from seed sown in June to blossom the following year, or from seed sown in January in a warm greenhouse to flower the same year.

Snapdragon.—No garden can be considered to be complete without a few groups of Snapdragon. If the plants are grown properly, they form splendid bushes and produce a profusion of blossom throughout many weeks in high summer. The flowers commence to open in June and continue to appear throughout July. Such plants as these can only be obtained by sowing seed in June of the previous year. Those possessing a warm greenhouse may raise plants to bloom the same year by sowing seed in early spring, but they will not be so fine as plants raised the previous summer.

If seed is sown in a box of fine soil placed in a cool and shady frame it will soon germinate, and in a few weeks the seedlings will be ready to transplant at 6 or 8 inches apart on a reserve plot. If weeds are kept down and the soil is hoed frequently the plants will be ready for the flower border by early October. They ought to be put at 2 feet apart. If the garden soil is clayey and gets very wet in winter, the Snapdragons may look rather poor in spring, but with improving weather they will soon make progress, and by early June will have grown into fine little bushes full of buds.

There are some charming shades of colour among the modern Snapdragons, varying from white through pink to crimson, and through primrose to orange. The terra-cotta, orange and yellow shades are particularly attractive. Many varieties may be purchased by name, but an excellent selection is obtainable from seed of distinct colours, which may be bought separately.

There are three types of Snapdragon: the Dwarf, or Tom Thumb varieties, which grow from 9 to 12 inches high; the Intermediate varieties, which reach a height of about 18 inches; and the tall sorts, which grow 2 feet or more in height. The Intermediate and the tall are by far the most graceful sorts.

CHAPTER XIV

The Mixed Flower Border

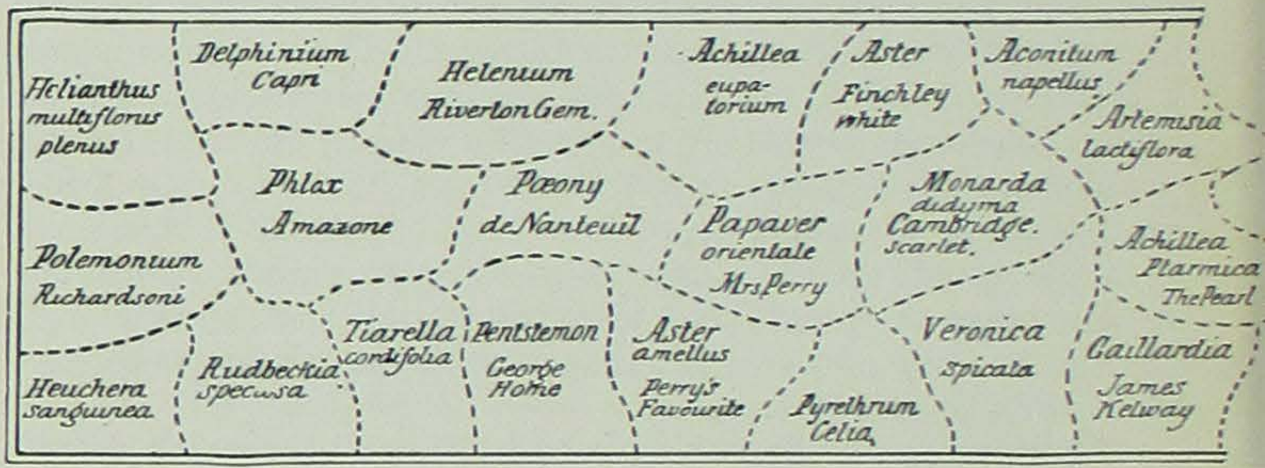
The border of hardy flowers is a feature that the amateur gardener cannot afford to neglect. It provides one of the finest displays possible, and if the plants are carefully chosen and well arranged, it yields a supply of attractive blossom throughout summer and early autumn. Those whose space is restricted, and whose time for gardening is limited, will be well advised not to attempt elaborate colour schemes; when planned on these lines the border can be kept gay only when arrangements are made to replace plants that have blossomed with others grown on a reserve plot. One should endeavour so to arrange the plants that they will not clash when in bloom, but this is a much easier task than planning an elaborate scheme of colour arrangement.

Planting.—The first thing is to have the border dug deeply in autumn, yard manure being mixed in as the work proceeds. Basic slag is an excellent artificial fertiliser, and ought also to be used in autumn at the rate of 6 oz. per square yard, this amount being mixed with the soil while digging. The best time for planting hardy perennials is in October and early November. If the work is delayed much later than this, the plants do not, as a rule, make much display the following season. Care should be taken to allow plenty of room between the vigorous sorts. If the plants are crowded, the flowers are not shown to advantage, while it is difficult to stake the plants properly, with the result that the border soon becomes untidy.

Most of the tall plants should be placed at the back of the border, but as it is wise to avoid monotony of outline, a few of them should be put towards the front with the object of breaking up the groups of dwarf plants.

Indispensable Plants.—There are certain plants which even the small border ought to contain; they are indispensable. Let us take note of them. There may well be a few groups of spring-flowering bulbs, such, for example, as Snowdrop and Glory of the Snow (Chionodoxa), Daffodils, and Tulips. As the foliage is rather in the way as the season advances, it is as well to place these bulbs towards the back of the border, where, as they lose their attractiveness, they will be hidden by the growth of the taller plants.

For the back of the border one can scarcely dispense with Helenium Riverton Gem and Riverton Beauty, Aconitum Napellus bicolor (blue and white Monkshood), Thalictrum aquilegifolium (Meadow Rue), Lavatera olbia (tree Mallow), Spiraea Aruncus, the Dropmore Alkanet (Anchusa italica Dropmore variety)—the most brilliant of blue flowers, only biennial in many gardens, though easily propagated by means of pieces of root—Campanula lactiflora, a handsome Bellflower, Delphinium (Perennial Larkspur), Galega Hartlandi (Goat's Rue), Helianthus Miss Mellish, a handsome Sunflower, Rudbeckia Golden Glow, a showy Coneflower.

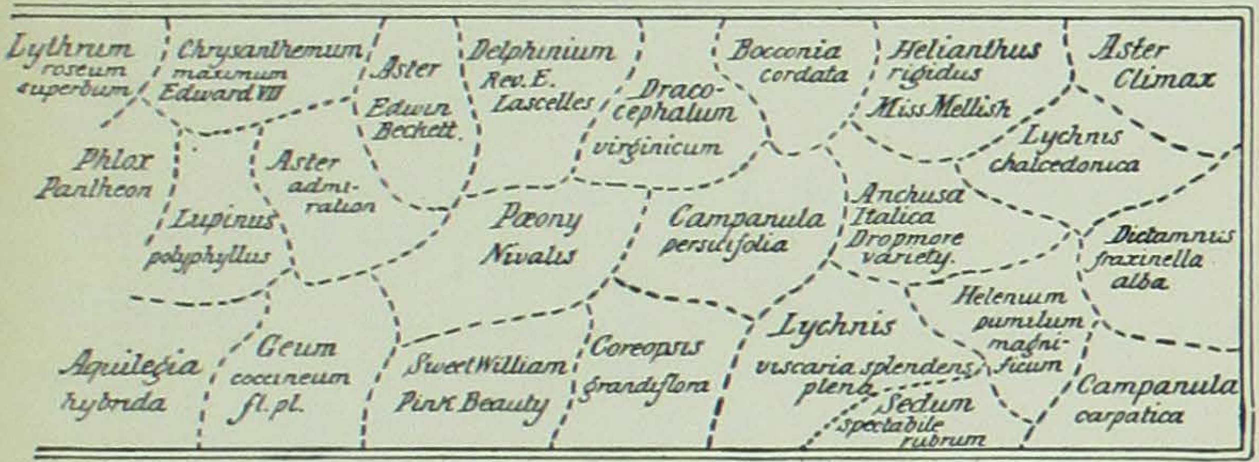


Plan for Mixed

Of those suitable for the middle of the border there are many from which to choose: Summer Chrysanthemum or Perennial Marguerite (Chrysanthemum King Edward), Coreopsis grandiflora (a brilliant golden yellow flower—should be raised from seed each summer), Spiraea Ceres (a beautiful rose-pink variety), Erigeron speciosus superbus (Summer Starwort), Veronica spicata (a charming blue flower), Achillea The Pearl (White Milfoil); Lupins, Pyrethrums, and Oriental Poppies, Campanula persicifolia (Peach-leaved Bellflower), Echinops Ritro (Globe Thistle), Eryngium planum (Sea Holly), Gypsophila paniculata (Gauze Flower), Helenium pumilum magnificum, Isatis glauca (Dyer's Woad), Lychnis chalcedonica, Monarda didyma (Bee Balm), Phlox, Salvia virgata, a purple Sage.

For the front of the border one may use Geum Mrs. Bradshaw, Veronica amethystina, Heuchera sanguinea (Alum Root), Campanula glomerata (Clustered Bellflower), Gaillardia, Oenothera fruticosa (Evening Primrose), Polemonium coeruleum (Jacob's Ladder), together with such dwarf plants as Evergreen Candytuft, Pinks, Violas, Arabis, and Alyssum.

Colour Schemes.—Those who wish to arrange their flower borders with due regard to the grouping of colours may, as has been pointed out, do this without necessarily planning a scheme in which numerous plants of the same colour are massed together. It is possible to place near each other flowers of shades that will harmonise, even in a border of many and various plants. An attractive result is obtained by starting at one end of the border with white flowers, working through pale blue, deep blue, and yellow to orange in the centre, thus completing half the border; for the second half, the scheme should be to let yellow succeed orange, and to complete the planting as for the first half. A striking border can be arranged by starting with white at one end, and working through pale blue and blue to pink and rose. Blue and white flowers look well together; so, too, do red and cream, orange and purple, yellow and blue, pale blue and pink, mauve and rose. Borders of these colours may be planted by those who care to do so, but it is necessary to have in reserve a supply of plants of the correct colours to replace those which have faded, and



Hardy Flower Border

this is often a difficult matter when one or two shades only are used.

One can obtain many delightful colour schemes in a mixed border which is planted without regard to the colour grouping as a whole. How well, for example, the blue Veronica amethystina looks beside the red Heuchera sanguinea; the salmon-coloured Oriental Poppy Mrs. Perry near the purple-leaved Plum (Prunus Pissardi); the white Achillea The Pearl beside the bright red Geum Mrs. Bradshaw; the old scarlet Lychnis chalcedonica in association with the blue of Campanula persicifolia (Peach-leaved Bellflower); the purple of Salvia virgata (a handsome Sage) with the grey foliage of Artemisia.

Good use ought to be made of Gypsophila paniculata, Flag Iris, Lavender, and other grey-leaved plants, or plants of neutral tone, for they add immensely to the charm of the border if planted between groups of brilliant flowers, and are in themselves attractive.

Flowering Shrubs in the Border.—The charm of the mixed flower border is often marred by blanks caused by the presence of prominent plants which have lost their beauty; this is particularly noticeable in a small border. This defect cannot be remedied altogether, though it is possible to do so to some extent by planting tall, late-flowering plants in front of the offending clumps—such, for example, as Dahlia, Gladioli, and Cape Hyacinth (the two last-named being " grown on " in flower-pots). But a simpler way of keeping the border attractive throughout a long season is to put a few flowering shrubs among the herbaceous plants; they are beautiful when in bloom, attractive even when their blossoms have faded, and they give stability and form to the border, thus preventing blanks which are unavoidable when herbaceous perennials alone are used. A few suitable shrubs for this purpose are Spiraea arguta and Thunbergii; hardy Fuchsias macrostemma and Riccartonii; Berberis Darwinii; and Hypericum calycinum (a low-growing St. John's Wort).

One might also with advantage include a few standards of the purple-leaved Plum (Prunus Pissardii), John Downie Crab, and a few Roses, together with Clematis and climbing Roses on poles. Any of the large, summer-flowering Clematis may be chosen, while suitable Roses are Tausendschon, Trier, Rubin, and Shower of Gold.

Tidy plants, those which remain attractive after their flowers have faded, are particularly useful in the small border, and all amateurs ought to make a note of them. Some of the best are Heuchera (Alum Root); Flag Irises (the grey leaves are beautiful throughout the year); Potentilla (Potentil); Campanula grandis (a handsome Bellflower); the Burning Bush (Dictamnus albus); the Meadow Sweet (Spiraea filipendula); Japanese Stonecrop (Sedum spectabile); Jacob's Ladder (Polemonium Richardsonii); Plantain Lily (Funkia); Canadian Golden Rod (Solidago canadensis); and Salvia virgata nemorosa (a handsome purple Sage).

CHAPTER XV

Work in the Flower Garden

It is not sufficient to fill one's garden with beautiful flowers; they must be tended with a certain amount of personal care. Weeds must of course be kept down, and nothing does the work so easily as a Dutch hoe. Needless to say, the lawn must be mown regularly and the edges kept trim; suckers should be removed from the roses, decaying leaves from spring bulbs, and all faded flowers be cut off. Nothing so prolongs the blossoming period of a plant as the removal of spent flowers.

Staking is an important item of garden work, for the attractiveness of the display depends to some considerable extent upon the way in which this task is done. The best stakes for many herbaceous plants are bamboo canes from 4 to 5 feet high; these, when inserted firmly in the soil, will be from 3 to 4 feet above the ground, and are sufficient support for the majority of herbaceous plants commonly grown. Several of the canes are placed round the clumps, at intervals, and loops of thin string are attached to them. In dealing with plants of slender growth, such, for example, as Gypsophila, pea-sticks may be used with advantage. They are unobtrusive and give sufficient support to the slender stems. Staking ought always to be undertaken in good time, while the flower stems are young. Use sticks of such a height that they will be hidden —or at least scarcely seen—when the plants are in bloom.

Propagation.—Hardy plants are usually increased by seeds, cuttings, or by taking up the clumps and dividing them. Practically all hardy herbaceous plants can be increased by means of seeds, which should be sown in May and June, in shallow drills on a partly shaded border and slightly covered with fine soil. If the seed bed is kept moist in dry weather, the seedlings of many kinds will show through in two or three weeks. As soon as they are rather more than an inch high, they ought to be transplanted some 3 or 4 inches apart, and in October will be large enough to be put out permanently where they are to bloom. When sowing seeds of choice kinds it is advisable to use boxes filled with sifted soil rather than risk the seeds in the open ground. Delphinium or Larkspur, Lupin, Oriental Poppy, Erigeron, Border Chrysanthemum, Campanula, Pinks, and innumerable others may be raised from seed without any difficulty.

Such plants as Arabis, Alyssum, Pinks, Phlox, perennial Marguerite, Helenium, and others that produce fresh shoots freely from the base in early summer, may be grown from cuttings. These are taken off in summer as they become ready, the lowest leaves are removed, and a cut is made directly beneath a joint. If inserted in pots or boxes of sand or very sandy soil, placed in a closed frame for a few weeks, they will form roots and may then be hardened off, and subsequently placed singly in small pots, finally to be planted out-of-doors.

The simplest way of increasing vigorous perennials, such as Campanula, Delphinium, Helenium, Helianthus or Sunflower, Aconitum or Monkshood, Michaelmas Daisy, and others equally familiar, is, in autumn or spring, to take up the clumps, divide them into as many pieces as are required, and replant the most suitable. It will be found that the central portion of the clump is of the least value, and preference ought always to be given to the growths on the outside of the old plant. Autumn flowering plants should be divided in spring, and summer flowering ones in autumn.

CHAPTER XVI

Flowering and Evergreen Shrubs

Shrubs are of immense value in a garden; even in quite a small garden a few suitable sorts ought to be planted. They relieve its flatness and monotony of outline; they give stability and form to the garden even in winter, when herbaceous plants have died down, and they provide variety of leaf and flower. If carefully placed they are invaluable for the purpose of screening or separating special features of the garden. What, for example, can be lovelier than the Almond in full blossom in early spring, or some of the ornamental Apples, Plums, Pears, or Peaches, to say nothing of the Rhododendron, Azalea, Guelder Rose, Spiraea, Flowering Currant, Lilac, Laburnum, Magnolia or Lily Tree, Barberry, Deutzia, and others? All the most beautiful flowering shrubs suited to the amateur's garden will thrive in ordinary soil, if one excepts the Rhododendron, Azalea, and Heath, which are liable to fail in soil containing much lime. Autumn is the best time to plant all the deciduous kinds — i.e. those that lose their leaves, though they may be planted in winter when the weather is mild; while evergreens may be transplanted in September and early October, or in April. The commoner evergreens, however, may be planted in autumn and during mild weather in winter.

Amateurs are not likely to experience much difficulty in growing shrubs; the chief trouble seems to be in the pruning. And this is not so difficult as it seems at first. Shrubs may be divided roughly into two classes: those that bloom on shoots of the previous year's growth, and others that blossom on shoots of the current year. Once the gardener has determined to which class the shrub under consideration belongs, the pruning is easily ascertained. It is obviously foolish, in dealing with a shrub that bears its flowers upon the last year's growths, to cut these away in spring; to do so is to ruin the prospect of a good display. The correct time to prune shrubs of this kind is when the flowers have faded. Representative sorts of this class are Flowering Currant, Forsythia or Golden Bell, Lilac, Mock Orange or Philadelphus, Berberis, and early flowering Spiraeas. It does not follow that these shrubs need to be hard pruned each year. Often it is necessary merely to cut out an old branch or two to make room for the younger ones; if, however, the shrub is unshapely or crowded it should be well thinned out when the flowers have faded, removing old and weak stems and shortening the remainder as much, or as little, as may seem necessary to restore the symmetry of the bush.

The second group of shrubs, those that bloom on shoots of the current year, are pruned in spring. Representative kinds are late-flowering Spiraeas, Hydrangea paniculata, Hypericum or St. John's Wort, Buddleia variabilis, Tamarix (Tamarisk), and Clematis of the Jackmanni, lanuginosa, and viticella types.

Of shrubs that do not need regular pruning may be mentioned Berberis, Cotoneaster or Rock spray, the vigorous kinds of Mock Orange or Philadelphus, Magnolia, Diervilla or Weigela, Azalea, and Buddleia globosa or Orange Ball tree.

A selection of shrubs suitable for the small garden may be made from the following list: Amelanchier or June Berry; Berberis Darwinii and stenophylla; Cydonia (Pyrus) japonica; Cytisus albus, praecox, Andreanus (all beautiful Brooms); Chimonanthus fragrans (Winter Sweet); Hamamelis mollis (Witch Hazel); Forsythia suspensa (Golden Bell); Genista hispanica (Spanish Broom); Magnolia stellata and conspicua (Lily Trees); Prunus Amygdalus (Almond); Prunus triloba (Flowering Apricot); Prunus japonica (ornamental Cherry); Ribes (Flowering Currant); Rubus biflorus (Flowering Bramble); Spiraea Thunbergii, arguta, Van Houttei, japonica, and Anthony Waterer; Syringa (Lilac); Deutzia gracilis; Philadelphus Lemoinei and grandiflorus (Mock Orange).

A few good evergreen shrubs are Aucuba, Berberis Aquifolium (Mahonia), Darwinii, and stenophylla, Box (Buxus sempervirens), Conifers in variety, Crataegus Pyracantha, Erica (Heath), Euonymus japonicus and radicans (the last-named a pretty creeping shrub for shady places), Ivy, Holly, Kalmia latifolia, Ligustrum ovalifolium (Privet), Olearia Haastii (Daisy Bush), Pernettya mucronata (bearing pretty berries), Laurel, Rhododendron, and Veronica Traversii. April is the best time to prune evergreen shrubs

Cutting Hedges.—The clipping of Holly, Yew, Box, Privet, and other evergreen hedges with shears is done once, in August, or twice, about the beginning of July and again in September. This goes on for some years, and the edge increases in size each year till there comes a time when more drastic measures must be resorted to, either because it is getting too big or it may be bare at the bottom. April is the time to do such work. In the case of an old hedge—Holly, for instance—the work is better spread over two or even three years.

CHAPTER XVII

Favourite Flowers

ONCE well planted in a favourable position, Lily of the Valley ought to be left undisturbed for many years—until, in fact, the plants fail to flower well. The bed should be made in a partially shaded position—facing west is as good as any. The soil must be deeply dug, and leafmould and well-rotted manure should be mixed in freely. This plant will not thrive in a hot place, where the soil is liable to get dry in summer. Moreover, it must have a plentiful supply of water in hot weather. Planting is best carried out in October; the roots ought to be put about 3 inches apart, the top of each root or "crown," as it is called, being only just below the surface. When growth is commencing in spring, a mulch or covering of rotted manure or decayed leaves is most beneficial.

Violet.—The Violet likes a partially shaded position, such, for example, as a border facing west, although it will thrive in an exposed position; it dislikes a hot, dry border. The Violet needs loamy soil with which leafmould is freely mixed. Propagation is by means of runners, which are taken off in early summer when rooted; or the old plants may be taken up in April and divided, the younger portions being replanted and the older thrown away. The young plants should be put out at about 18 inches apart. During summer all runners that form are cut off, and weeds must be destroyed by the Dutch hoe. Early flowers can be obtained by covering a few roots with handlights or bell glasses in autumn. Plants intended for planting in a frame containing a hotbed, for the purpose of providing blossoms in winter, are taken up in September and planted in a 9-inch deep bed of soil made up on the hotbed.

Good varieties are (*single*): Princess of Wales, purple blue; Admiral Avellan, reddish mauve; La France, violet blue; White Czar, white; and Rose Perle, rose. Some of the best *double* Violets are Comte de Brazza, white; Marie Louise, mauve blue; Lady Hume Campbell, pale blue; Neapolitan, lavender blue; and Mrs. J. J. Astor, pale rose.

Climbing Plants.—There are innumerable climbing plants, but comparatively few are suitable for the small flower garden. The Clematises are indispensable. They are not difficult to grow if one plants them in loamy soil with which a little lime rubble is mixed, taking care to cover the uppermost roots with about 2 inches of soil and to protect the lower part of the plant from strong sunshine by means of a few shrub branches or other similar material. The ground ought to be deeply dug, and if it is clayey a few broken bricks should be placed at the bottom of the hole for drainage. Pruning is a matter that calls for some care, for while some varieties blossom on the shoots of the current year, others flower on the shoots of the previous summer. Varieties that should be cut hard back in February—to within about 12 inches of the ground—are Jackmanii, purple; Jackmanii alba, white; Madame Edouard André, reddish; and Gipsy Queen, purplish. Varieties that need rather less severe pruning, also in February, are Beauty of Worcester, violet blue; Mrs. G. Jackman, white; Sensation, mauve; and Marcel Moser, pale reddish mauve with deeper bands. The following Clematises should not be pruned until the flowers are over, and pruning takes the form of cutting out or shortening old stems to encourage the growth of fresh ones: Belle of Woking, double, silvery grey; Duchess of Edinburgh, double white; Miss Bateman, white; and Lady Londesborough, silvery grey.

Ceanothus Veitchianus is a beautiful blue-flowered shrub for a sunny wall. Polygonum baldschuanicum is a rampant climber which bears bunches of creamy flowers in May and early September. Hydrangea petiolaris, bearing large, flat bunches of white flowers, is useful for a wall facing north. Jasminum Beesianum is a new red-blossomed Jessamine that promises to become popular. Wistaria sinensis and Wistaria multijuga (the last-named having longer flower bunches) are familiar climbing shrubs. Reference is made to climbing roses in another chapter. Then there are, of course, annual climbers such as Nasturtium (including Canary Creeper), Convolvulus, Cobaea, and others, easily raised from seed sown in greenhouse or frame in spring.

Bulbs.—There is little of importance to tell regarding the cultivation of popular bulbs, for most of them are perfectly easy to grow. Early flowering sorts, such as Snowdrop, Crocus, Apennine Anemone, Grape Hyacinth, Squill or Scilla, Chionodoxa or Glory of the Snow, ought to be planted as soon as obtainable—in August or September. The hardy Cyclamen are charming for well-drained soil, containing lime rubble, and prefer some shade; the autumn flowering species, europaeum and neapolitanum, are planted in July and August, and the spring flowering sorts—i.e. Coum, repandum, cilicicum—are planted in September. Daffodils, Hyacinths, and early Tulips are best planted in October, and May flowering Tulips in November. The largest bulbs of these kinds should be covered with 3 or 4 inches of soil, and the small or moderate sized bulbs ought to have 2 inches of soil above them. In planting the small kinds, such as Snowdrop, Crocus, etc., plant from 2 to 3 inches deep. Some of the decorative Onions, such as Allium Moly (yellow) and Allium neapolitanum (white), are attractive; so, too, is Ornithogalum umbellatum, to mention only one of the "Stars of Bethlehem." Poppy Anemones may be planted in October or in spring; they yield a dazzling show of bloom. All these kinds are described in florists' catalogues, and numerous fresh varieties of many kinds appear each season.

The Lilies are invaluable garden flowers, many of which offer no difficulty in ordinarily well-tilled soil. The white Madonna Lily (candidum) should be planted in August; the Orange Lily (croceum) and Nankeen Lily (testaceum) in September; Henryi, Chalcedonicum, Martagon, and others in autumn.

Of bulbs or roots to plant in spring there are the Tiger Lily (Lilium tigrinum), Japanese Lily (Lilium speciosum and its varieties), White Trumpet Lily (longiflorum), Lilium auratum, Cape Hyacinth (Galtonia candicans), Gladioli in great variety, Tuberous Begonias and Dahlias (for May planting).

CHAPTER XVIII

Annuals and Biennials

Annuals are plants which are commonly sown in spring to blossom in summer of the same year; having flowered, they die. Biennials are raised from seed one year to bloom the next; they, too, are useless after having flowered. Annuals are grouped according to their degree of hardiness; thus there are hardy, half-hardy, and tender annuals. With the latter we are not now concerned.

Hardy annuals may be sown in March and April to produce flowering plants in July and August, or they can be sown in September to blossom in spring and early summer. Their cultivation is of the simplest. Seed is sown fairly thinly where the plants are to bloom. The depth of soil covering required varies according to the size of the seeds; very small ones need only the merest sprinkling of sand or sifted soil, while from ¼ to ½ inch is sufficient for the others, with the exception of such as Sweet Peas, which ought to be placed from 1 to 2 inches deep. One has only to notice the fine development of self-sown seedlings to realise how necessary it is to carry out the work of thinning properly, so that each seedling shall have sufficient room for development. Some of the taller sorts may require support; this is best given by means of small pea-sticks.

Selection of Hardy Annuals.—The following selection includes some of the finest annuals, classified according to colour:

White.—Alyssum maritimum (Sweet Alyssum); Chrysanthemum inodorum plenum (double white annual Chrysanthemum); Collinsia candidissima; white Iberis coronaria (Candytuft); White Annual Lupin; Schizopetalon Walkeri.

Red.—Cacalia coccinea (Tassel Flower); Collomia coccinea; Linum grandiflorum rubrum (Red Flax); Malcolmia maritima (Virginian Stock); Malope trifida (Mallow); Papaver somniferum (Opium Poppy); Polygonum Persicaria (knot-weed); Saponaria calabrica (Soapwort); Viscaria cardinalis.

Pink and Rose.—Clarkia elegans and Clarkia pulchella varieties; Gypsophila elegans; Lavatera trimestris (Mallow); Matthiola tristis (Night-scented Stock); Shirley Poppies; Godetia varieties.

Blue.—Asperula azurea setosa (Blue Woodruff); Centaurea Cyanus (Cornflower); Commelina coelestis (Spiderwort); Gilia capitata; Kaulfussia amelloides (Cape Aster); Annual Lupin; Nemophila insignis; Nemesia Blue Gem; Nigella Miss Jekyll (Love-in-a-Mist); Phacelia campanularia; Salvia Horminum (Blue Beard Salvia); Whitlavia grandiflora (Californian Bluebell).

Yellow.—Bartonia aurea; Chrysanthemum Morning Star and Evening Star; Coreopsis Drummondi and tinctoria; Erysimum arkansanum and Peroffskianum; Eschscholtzia californica (Californian Poppy); Helianthus (Sunflower) in variety; Layia elegans; Limnanthes Douglasii; Reseda odorata (Mignonette); Sanvitalia procumbens.

Half-Hardy Annuals may be raised from seed sown in a greenhouse temperature of about 50° in February and March; or some of them may be sown out of doors, where they are to bloom, towards the end of April and early in May. Those sown out-of-doors are treated in the way already advised for hardy annuals; those grown under glass are sown thinly in boxes, and the seedlings when large enough to handle are transplanted, at 3 or 4 inches apart, in other boxes of soil or in a bed of soil made up in a frame. They are gradually hardened off ready for planting out of doors late in April and in May.

Chief of half-hardy annuals are Asters, Ten Week Stocks, Nicotiana or Tobacco Plant, Tagetes (French and African Marigolds), the low-growing Phlox Drummondii, Zinnia, Verbena, Petunia, Acroclinium (Everlasting), Arctotis grandis (Cape Daisy), Cosmea bipinnata, Dianthus chinensis (Chinese Pink), Nemesia strumosa (Orange Daisy), Schizanthus pinnatus and retusus (Butterfly Flower). Pentstemon and Snapdragon are often treated as half-hardy annuals; so, too, are decorative Chrysanthemum and some rock garden flowers, such, for example, as Trailing Snapdragon (Antirrhinum Asarina) and Toadflax (Linaria alpina).

Biennials.—There are many favourite flowers among the biennials, and all are easily grown, though a reserve border or plot is necessary for their accommodation. Seed is sown out of doors in May and June on a border of which the soil has been broken down to a fine tilth. The seeds are sown thinly in drills about 6 inches apart, and as soon as the seedlings are large enough to take hold of conveniently, they are transplanted at about 8 inches apart, there to remain until October, when they are put out where they are to flower.

Chief among hardy biennials are Canterbury Bell, Honesty, Foxglove, Brompton Stock, Sweet William, Verbascum or Mullein, some Evening Primroses, and Wallflower. Other plants commonly grown in a similar way are Chinese Pinks, Snapdragons, Forget-me-nots, Polyanthus, and Aquilegia or Columbine.

CHAPTER XIX

Insect Friends

Although the amateur gardener has numerous insect enemies to contend with, he also has several valuable insect allies which help to destroy and keep down various destructive pests. Of these insect friends Ladybird Beetles are one of the best, as both the insects and their larvae to a large extent live upon aphides, or greenfly, which form a common and most troublesome pest. Ladybird Beetles, which are of various colours and spotted in various ways, are readily recognised, but the larvae, which are more ravenous, are not so well known. The Ladybird Beetles lay their eggs on the underside of the leaves, and from these, grubs, which are dark grey in colour and more or less spotted, hatch out and feed upon any greenflies which they come across. In about three weeks the grubs turn into pupae, from which other perfect beetles emerge in due course.

Lacewing Fly.—This and its larvae form another insect ally which helps to exterminate aphides. The flies are very pretty, having gauze-like transparent wings and slender green bodies. The eggs of the flies are deposited on the plants and are peculiar, as they are attached to the ends of filaments and appear like hairs with tiny knobs at the ends. Light dirty brown coloured larvae hatch out of the eggs and devour the greenflies more voraciously than the perfect flies themselves. Another fly which is of great value to the gardener is the

Ichneumon Fly.—There are numerous species of this fly and they vary considerably in size. Ichneumon Flies have very slender bodies furnished with an ovipositor. Caterpillars are attacked by the friend in question. The flies alight on the caterpillar, and, piercing them with the ovipositor, deposit an egg, from which a grub hatches inside the body of the caterpillar and on which it feeds until its victim dies. When fully fed the larvae form cocoons, from which in due course perfect flies emerge. (See Fig. 3, page 145.)

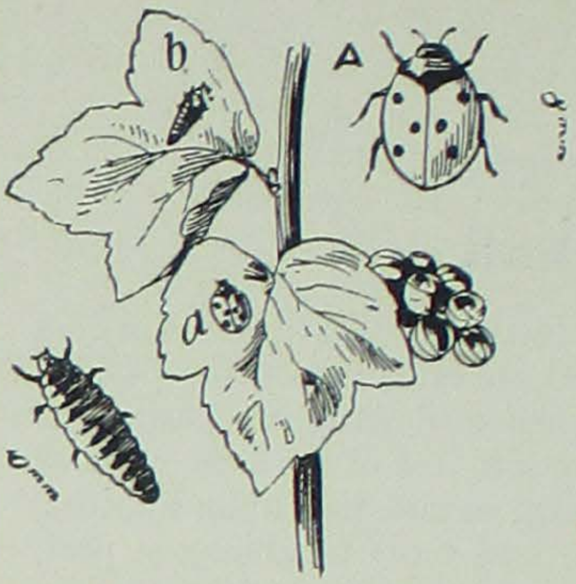


Fig. 1.—(a) Ladybird Beetle. (b) Larva

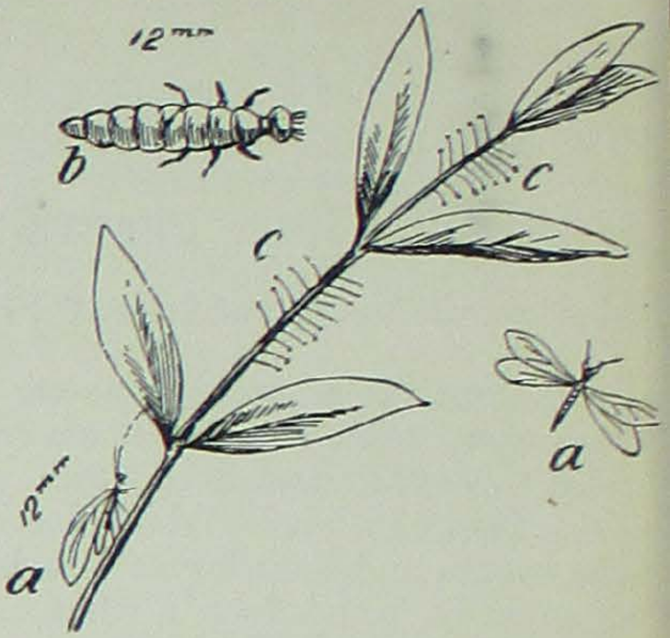


Fig. 2.—(a) Lacewing Fly. (b) Larva. (c) Eggs of the Female Fly

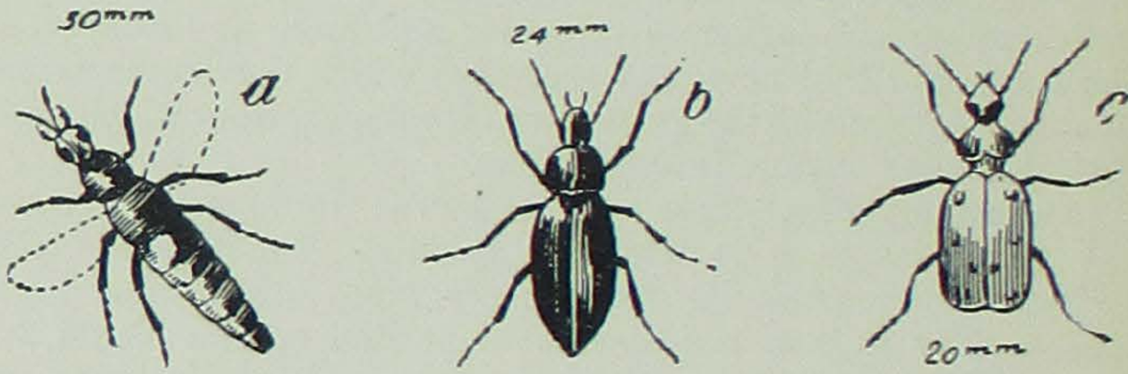


Fig. 4.—(a) The Devil's Coach-Horse Beetle. (b) Ground Beetle (Carabus). (c) Tiger Beetle

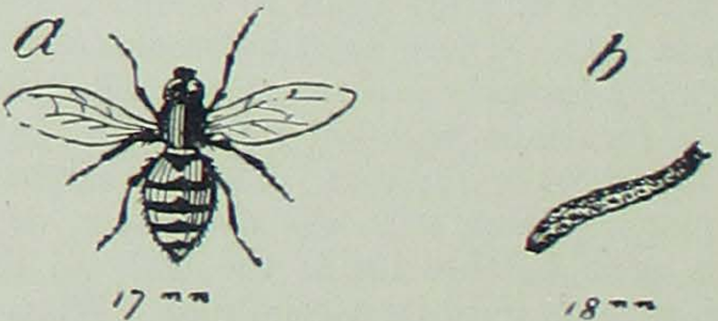


Fig. 6.—(a) The Hawk Fly. (b) Larva

Beetles.—There are many beetles which are friends of the gardener, amongst which may be mentioned the Devil's Coach-horse Beetle, the Tiger Beetle and the Ground Beetle (Carabus). These insects are carnivorous and eat grubs and insects which infest the ground. The Devil's Coach-horse Beetle has a long black body and rather short wings, which, however, are not much used. The beetles run rapidly, and when disturbed turn up the hind portion of their bodies. Tiger Beetles are most frequently found in light sandy soil. They are green and brown in colour, can fly and run rapidly, and are unmistakable by reason of their peculiar shape.

Centipedes are very useful occupants of our gardens, for, being carnivorous, their diet consists chiefly of snails, slugs, grubs and insects infesting the ground. It is important that Centipedes should not be mistaken for Millipedes or false wireworms, which are, of course, very destructive. With a little observation they can readily be distinguished from Millipedes, as the former have flattened bodies, not nearly as many legs as the latter, and have only one pair of legs to each segment.

Hawk Flies are good friends of the gardener, as their larvae destroy hundreds of greenflies. The flies have a habit of hovering over plants, and are often termed " Hoverer " flies. They are wasp-like in appearance, having somewhat similar yellow stripes over the body. These flies do not sting. The females lay their eggs amongst batches of greenflies, and when the grubs, which are yellow-green in colour, hatch out they at once commence to devour the insects. When fully fed the larvae attach themselves to leaves and turn into pupae, from which perfect insects emerge in a short time.

Fig. 1 shows at A the Ladybird Beetle, and at B larva. The approximate natural size of the grubs and insects is given. Fig. 2 illustrates at A the Lacewing Fly, B larva, and C the eggs of the female fly. Fig. 3 (page 145) shows the Ichneumon Fly. Fig. 4 illustrates at A the Devil's Coach-horse Beetle, B Ground Beetle (Carabus), and C Tiger Beetle. Fig. 5 (page 145) shows at A Centipedes and at B Millipedes, the number of legs of the latter being one of the principal differences. Fig. 6 illustrates at A the Hawk Fly and B its larva.

CHAPTER XX

Garden Pests

To achieve success in gardening one has often to take measures to prevent the destruction or disfigurement of the plants by insects or other pests, or by some of the diseases to which they are liable. Generally the preventive or remedial measures are simple and the solutions are easy to prepare; the chief point of importance is to apply them early, while the enemies are still few in number.

Aphis.—This, which is commonly known as greenfly, is the most familiar of all insect pests that attack garden plants. Aphides increase very rapidly on the arrival of warm weather, and unless steps are taken to destroy them, the shoots of roses, fruit trees, and many other plants become smothered with the insects. The simplest of all remedies is hot water, as the following experience of a grower will show: "Last season I cleared my plants of greenfly by very simple means, namely, by using hot water. The water was boiled and taken straight into the garden and applied by means of a fine spraying syringe. The water was so hot that I had to hold the syringe with a cloth, yet although the flower buds were well advanced not a single one was damaged. After several sprayings the greenfly was seen no more." Quassia and soft soap solution is a well-tried remedy. Dissolve one pound of soft soap in a little boiling water; just cover two pounds of quassia chips with water, bring the water to boiling point and allow the chips to simmer for twelve hours. During that time the liquid may be strained off several times and poured into the melted soap, fresh water being added to the quassia each time. The resulting mixture, after being well stirred, is sufficient to make 25 gallons of insecticide. To get rid of Aphis, syringe on two successive days, not on one occasion only, at intervals of a week or two.

Crane-fly.—This, which is commonly known as Daddy-long-legs, is the cause of much injury to numerous plants and crops,

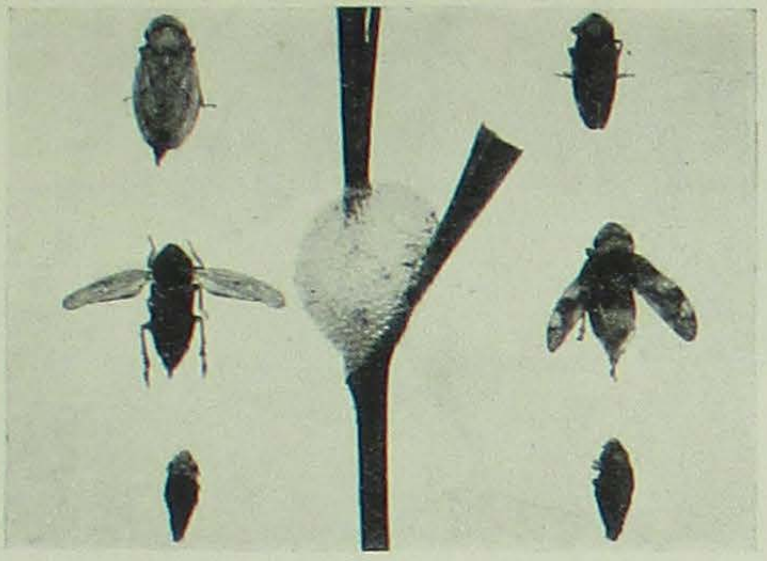


Fig. 5.—Frog-hopper with Male and Female Flies and Larvæ

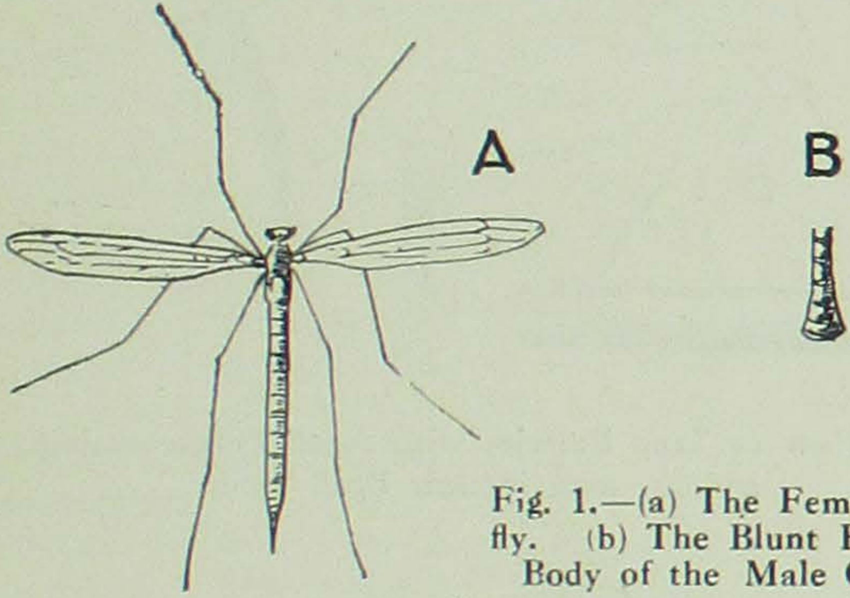


Fig. 1.—(a) The Female Crane-fly. (b) The Blunt End of the Body of the Male Crane-fly

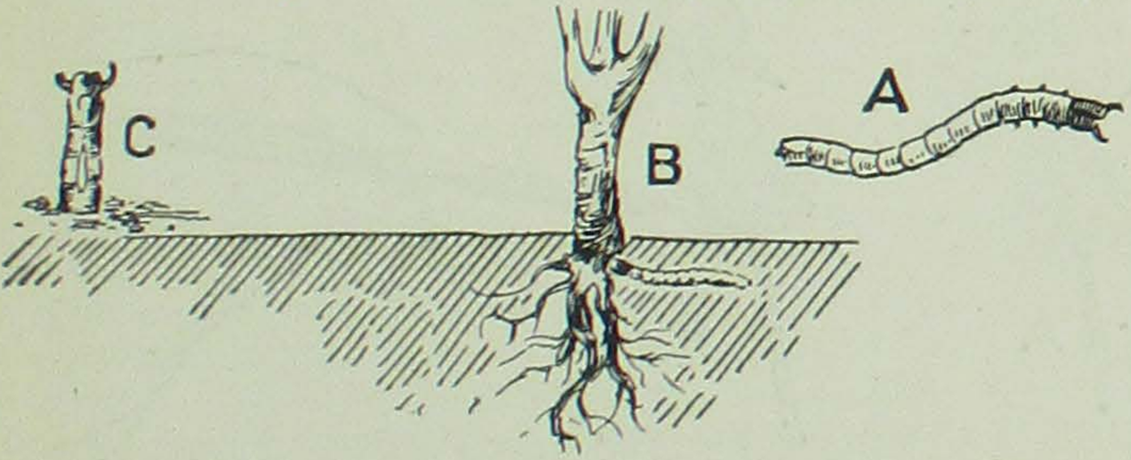


Fig. 2.—(a) The Leather-Jacket Grub or Larva of the Crane-fly. (b) The Grub Eating the Stem of a Plant. (c) The Pupa Wriggling to the Surface to allow the Mature Fly to escape

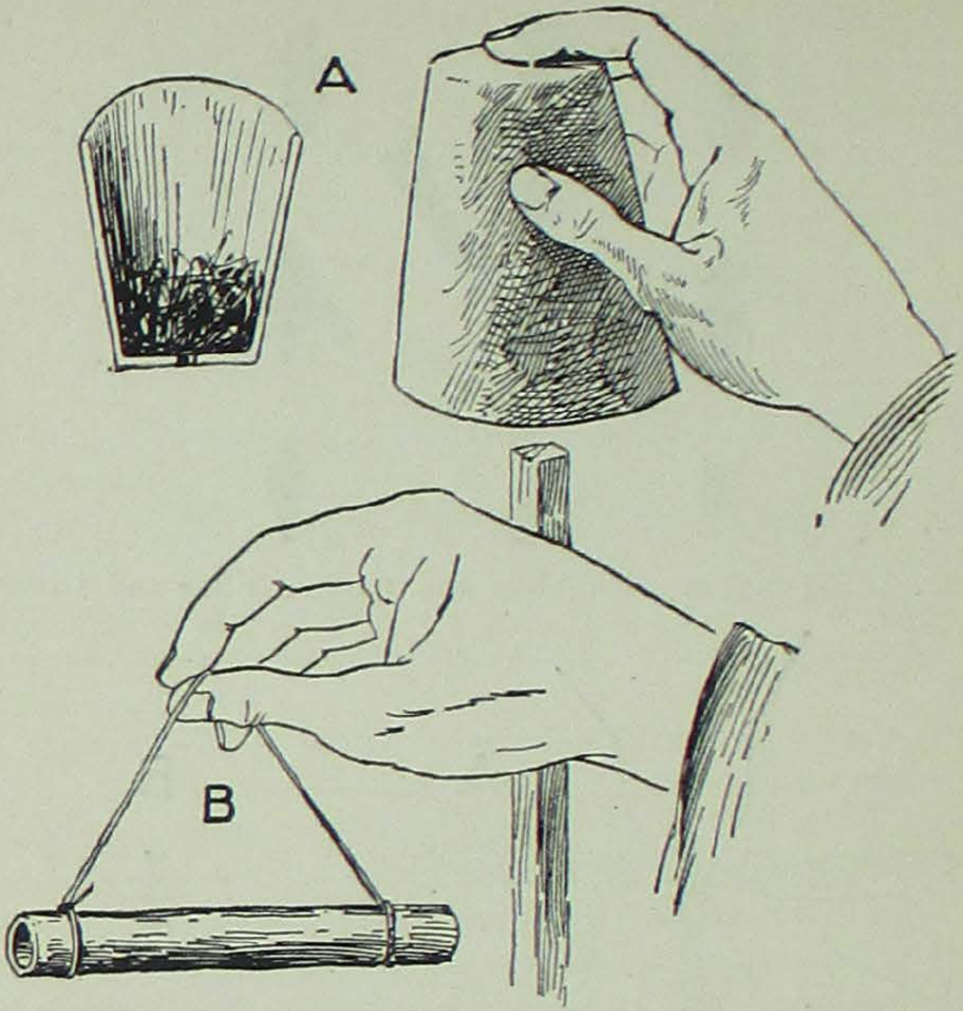


Fig. 3.—(a) How to Trap Earwigs with Small Pots containing Hay; and (b) with Hollow Bean Stem

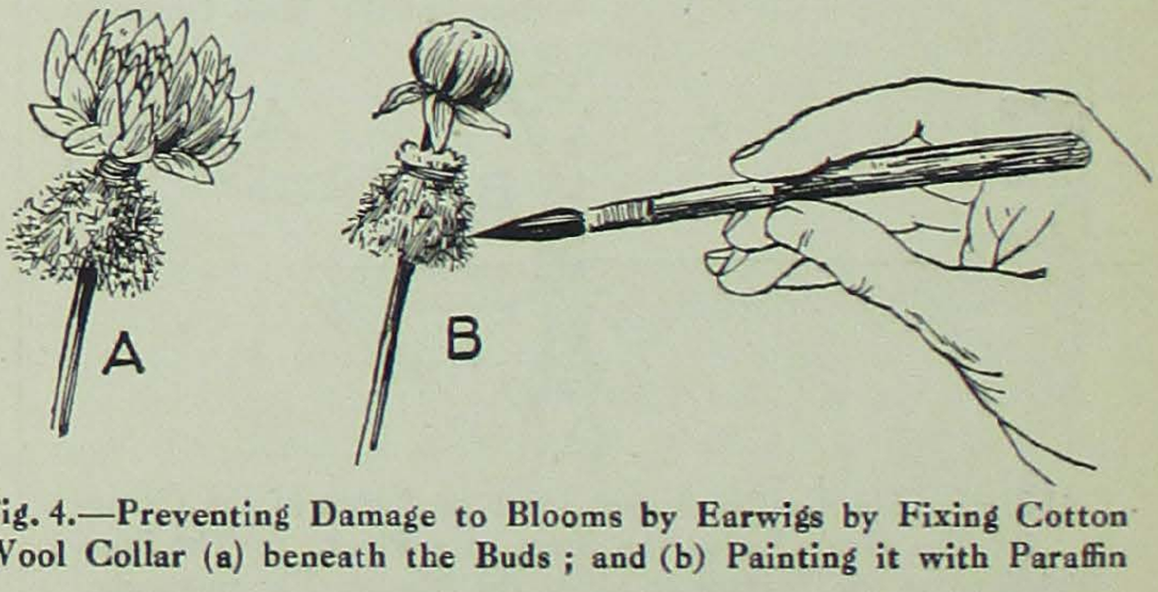


Fig. 4.—Preventing Damage to Blooms by Earwigs by Fixing Cotton Wool Collar (a) beneath the Buds; and (b) Painting it with Paraffin

the damage being done by the larvae or grubs, commonly termed leather-jacket grubs (Figs. 1 and 2). The grubs live to a great extent underground and feed upon roots and stems of plants with which they come in contact. When fully fed the larvae turn into pupae and after a time work their way to the surface to allow the mature flies to emerge. As many of the flies as possible must be destroyed, also any grubs observed while digging.

When it is seen that plants have been bitten, remove the soil around them and make a search for the grubs. Slates, tiles and pieces of board placed on the ground provide harbourage for the grubs, which often come to the surface at night. Dressing the ground with gas lime in winter is very beneficial. Turning the ground over in autumn and leaving it rough and exposed will give the birds every opportunity of destroying any grubs.

Earwig.—Earwigs are often the florist's greatest enemy, and must be systematically trapped and destroyed if damage is to be prevented (Figs. 3 and 4). Pieces of newspaper crumpled up and placed amongst the foliage make effective traps, while match boxes partly opened and placed among the plants are also serviceable. Small pots with a little hay in the bottom and inverted on the stakes supporting the plants are, of course, well-known traps, whilst hollow Bean and Sunflower stems afford welcome harbourage for the insects. The traps should be frequently examined, and the insects therein shaken into hot water.

Frog-hopper.—Everyone acquainted with the country will have noticed a curious white frothy spittle upon the wild plants during summer. This spittle, or " Cuckoo Spit," as it is popularly called, hides a greenish yellow grub, which is the larval stage of the Cuckoo Spit or Frog-hopper (Fig. 5). It is the larvae or grubs of the " hoppers " that produce Cuckoo Spit (see the central figure in the illustration, Fig. 5). The perfect insects abound most in late summer and autumn. When the curious-looking larvae are deprived of the shelter afforded by this frothy secretion they appear at first quite helpless, and if the day be hot are almost immediately killed. Hence an effectual mode of clearing plants of Cuckoo Spit is to brush it off during sunshine. This pest attacks the young shoots of plants, choosing the axils of the leaves for its abode, and so damaging the shoot in some cases as to cause it to die or become malformed. Carnations, Pinks, and similar plants suffer greatly from its ravages, while shrubby plants do not escape its attention. When fully developed the insect is a fine jumper, using both legs and wings to advantage, and in this stage is not easily combated. Therefore assail it in its larval or Cuckoo Spit stage.

The following are usually found to be effectual remedies:

(1) Hot water. Water at a temperature of 130° to 135° Fahr. is one of the simplest and most effective of insecticides when applied with force by a syringe so as to break the froth and reach the larvae, of which there may be two or more under each Cuckoo Spit. Even syringeing with clear cold water is excellent practice, repeating occasionally or frequently, but not so as to keep the plants dripping with moisture through the night.

(2) Tobacco liquid. To 1 gallon of hot soft water add 1 oz. of soft soap, and when thoroughly dissolved mix 1 teaspoonful of nicotine compound with the solution, and well spray the plants, using a syringe with a spraying nozzle. This is best applied lukewarm and may be washed off with clear water in about an hour.

(3) Quassia extract and soft soap. Steep ¼ lb. of quassia chips in 1 gallon of boiling water. When cold add about the same quantity of water in which 2 oz. of soft soap has been dissolved. Apply by means of a syringe with a spraying nozzle. It need not be washed off. In this way the stems of the plants are rendered nauseous to the insects.

Leaf-Miner.—The grubs of the Leaf-mining Fly play havoc with the leaves of Chrysanthemum, Marguerite and other plants. The grubs make their way between the leaf surfaces and disfigure the leaves to such an extent as to ruin them. Leaves which are badly attacked should be cut off and burnt. If only a few of the greyish streaks—showing the progress of the grubs—are seen, the latter should be crushed between finger and thumb. There is no other cure, for insecticides have no effect on the grubs within the leaves. Attacks of the fly may often be prevented by sprinkling soot on the leaves or by syringeing them with weak tar water in late spring and early summer. When plants in the greenhouse are attacked by the Leaf-miner the preparation known as Autoshreds may be used with good results. Plants in pots, if placed under pans and fumigated with Autoshreds, will also be cured.

Millipedes.—Millipedes are distinguished by the body showing two regions; a head, followed by a number of resembling rings or segments, all of which carry one or two pairs of legs—centipedes one pair, millipedes two. Centipedes differ from millipedes in being active and carnivorous, feeding on insects, insect larvae, worms, snails, and slugs, therefore useful. Millipedes are very harmful, being vegetable feeders, destructive to the roots of plants, and to underground storage organs like bulbs, fleshy roots, root stems, and tubers (Fig. 6). They may be found in dark places, especially damp, under stones, bark or decayed wood, in loose soil, and at the roots of plants. They are especially attracted by the rubbish heap, decaying vegetation, rotting stalks, and litter used as mulching.

The most injurious species of millipedes belong to the families Julidae, distinguished by thirty rings to the body, and Polydesmidae, with nineteen body rings. One of the most troublesome is Julus puchellus (the uppermost and smallest figures shown in the illustration Fig. 6). This is about ½ inch long, slender, about the thickness of a pin, pale yellowish-pink in colour with a double row of crimson or purplish spots on it.

The other species shown is Julus terrestris, black or leaden coloured and a pointed tail. This is shown in the figures in the upper left-hand side The others show the various attitudes assumed by the millipedes when disturbed.

The millipedes increase and perpetuate by eggs, the female Julus terrestris, for instance, deposits her eggs from May to July in a nest made of pieces of earth fastened together with saliva; this nest is rounded oblong in form, smoothed inside and rough on the outside, with a small hole at the top through which the eggs are deposited—these vary from 60 to 100. The hole is closed, and the larvae hatch out from the eggs in from ten days to a fortnight.

Millipedes are fostered in leaf-mould and other decaying matter. Such material should therefore be examined, and treated with a mixture of 1 part slaked lime and 2 parts soot; one-tenth of the mixture to the entire amount of material. Apply a fortnight or three weeks before using.

The mixture of lime and soot may be used on infested land, 1 peck to ½ bushel per square rod, broadcasted and worked into the soil in advance of sowing seeds or setting plants.

Dusting soot about and over infested plants, 1 peck per square rod; or soot and water, a handful of good soot to 1 gallon of water, well mixed, and applied to the roots of plants, drives the millipedes away for a time.

Slices of mangolds scooped out on one side, placed just under the ground, attract the millipedes. Examine the traps at intervals of a few days, and collect and destroy them.

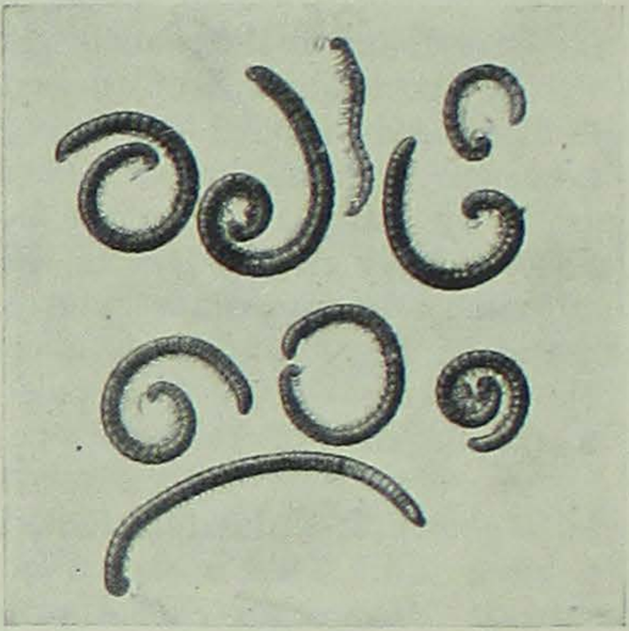


Fig. 6.—Millipedes or Julus Worms

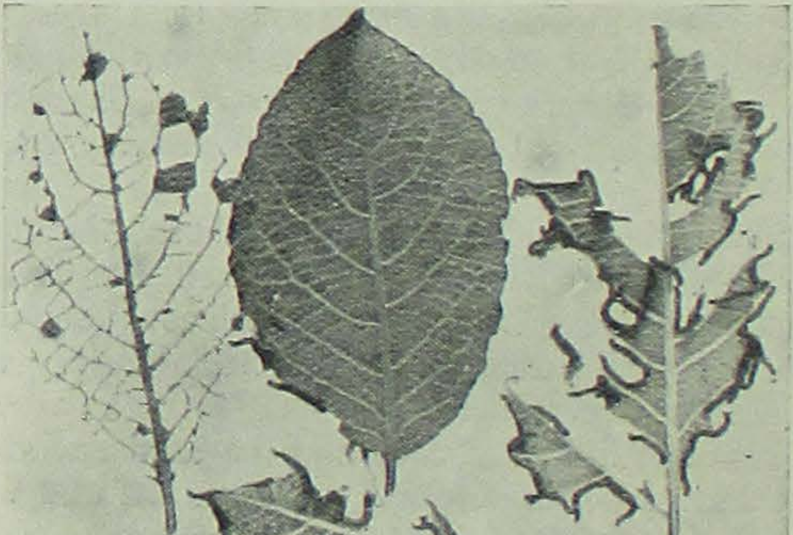
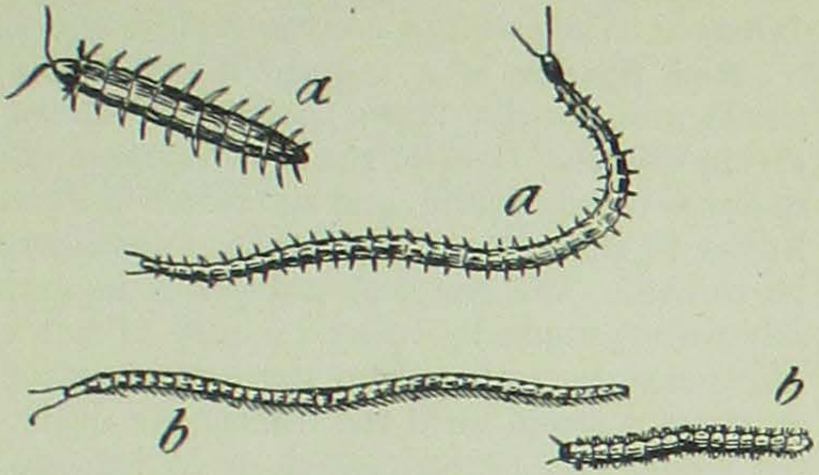


Fig. 9.—Caterpillars of Sawfly on Willow

Ichneumon Fly



(a) Centipedes. (b) Millipedes

Narcissus Fly.—The Narcissus Fly is the worst pest growers of the bulb in question have to contend with (Figs. 7 and 8). The flies emerge from the pupae in the soil during the months of April and May, and when perfect closely resemble bees, their bodies being banded with yellow. Larvae or maggots hatch out from the eggs of the flies and burrow into the necks of the bulbs and feed upon the inner portion. When Narcissi bulbs are lifted, those which have been attacked by the larvae can readily be recognised, as the decay produced causes them to become

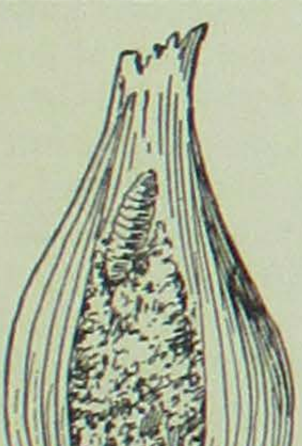


Fig. 8.—Bulb Infested by Narcissus Fly

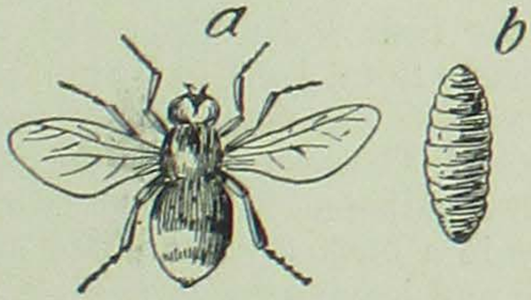


Fig. 7.—(a) Narcissus Fly, and (b) Maggot

soft and to deteriorate generally according to the extent of the damage. They are, of course, useless and should be burnt.

Red Spider is a minute insect that attacks the leaves of plants and shrubs, more particularly those growing in hot and dry positions. It is on the lower surface of the leaf that the red spider is chiefly found, and the result of its attacks is to cause the leaves to present a rusty brown appearance, and ultimately to be ruined. The simplest remedy is to syringe the leaves with salt water, made by using 1 ounce of salt to 1 gallon of water. This must be syringed on the lower surface of the leaves, once or twice a week, until the insects are destroyed. The attack of red spider can be prevented, or at least reduced, by syringeing the plants frequently with plain water. Shrubs and plants in a hot position, either under glass or out of doors, must be kept moist at the root, and it is a good plan, in dry weather, to spray the leaves forcibly with the hose.

Sawflies.—There are many species of Sawflies, usually popularly named after the kind of plant they, as caterpillars, infest, such as Rose Sawfly, Turnip Sawfly, and Willow Sawfly, the devastating work of which is well represented in the illustration (Fig. 9), and of the larvae of the Sawflies generally. The eggs of the Gooseberry Sawfly are conspicuous and the leaves bearing them should be collected and burnt, this being done before the caterpillars have crawled and spread themselves over the plant. The following are effective remedies for the caterpillars and other biting insects: (1) Hellebore powder mixed with water, 1 oz. to 3 gallons of water and 2 oz. of flour, applied with a sprayer, the liquid being agitated whilst it is being applied. As hellebore is poisonous it should not be used within six weeks of the fruit being gathered. (2) Arsenate of lead, purchased in paste form, 1 oz. to 3 pints of water, or 1 lb. to 25 gallons of water, or two teaspoonfuls to a gallon of water, thoroughly mixed. This should not be used within six weeks before the fruit is gathered. (3) Lime water, made by placing 1 lb. of quicklime in a bucket, slaking and adding 1 gallon of water, stirring well and leaving for forty-eight hours, then using the clear lime water. This should be put on in a fine spray directed over every part of the bush for some time. It is serviceable where it may not be advisable to use the poisonous preparations. (4) The surface soil under bushes should be removed for a depth of 2 inches in winter, and be buried deeply in a hole prepared for the

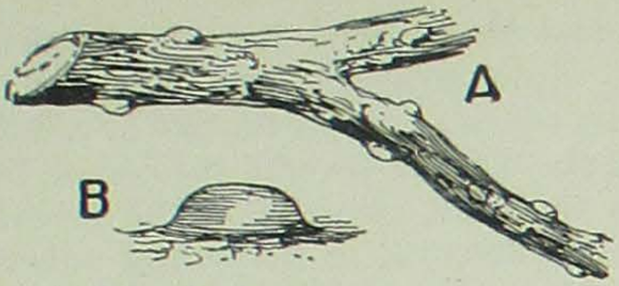


Fig. 10.—(a) The Scale Insect as seen on a Stem and (b) Magnified

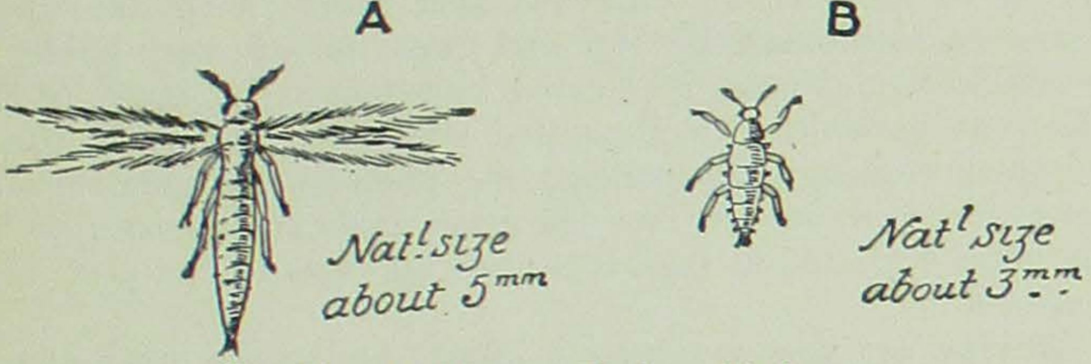


Fig. 11.—(a) Mature Thrip. (b) Larva

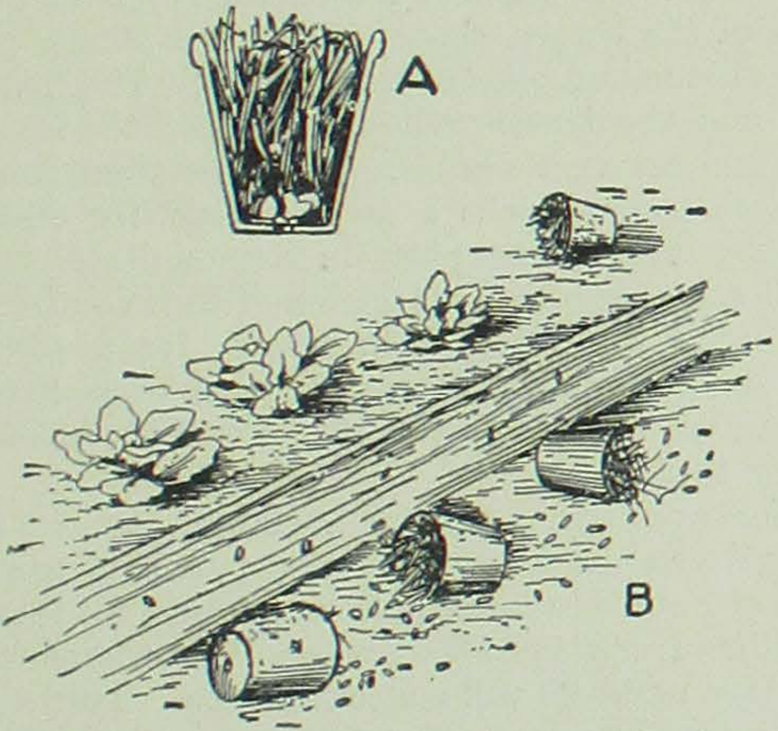


Fig. 12.—(a) Traps for Woodlice, using Potato and Hay in Small Pot ; and (b) Placing them in Suitable Places on the Ground

purpose; it should be replaced with fresh earth and manure. This is the best winter treatment where there has been infection and it has run its course, as a preventive of re-infection.

Scale Insect.—Of the several species of Scale Insects the Brown Scale is the most common in the greenhouse (Fig. 10). The insects, which are oval in shape and adhere closely to the stems and leaves, cause great injury by sucking the sap from the plants. It is a pest which should be dealt with promptly, and in cases where the affected plants are of little value the quickest way is to burn them. Hard-wooded plants such as Palms, Oleanders, Gardenias, Myrtles and Camellias are very liable to be attacked, and must be treated by removing as many of the insects as possible with a pointed stick and destroying them, and then washing and sponging the plants with some suitable insecticide, such as Fir Tree Oil (obtainable from nurserymen), this being repeated at intervals until all signs of the pest have vanished.

Thrips are very destructive insects and cause much injury to numerous hard-wooded plants both indoors and outdoors (Fig. 11). Both the mature insects and the larvae feed on the surface of the leaves, shoots and flower stems, piercing the epidermis and sucking out the vital juices. The mature insects are brown and the larvae yellowish white; the former possess four wings and are very nimble. When possible, fumigation on three successive evenings is a good remedy for destroying the insects, whilst dipping the plant in some suitable insecticide—2 oz. of soft soap dissolved in 1 gallon of warm water to which a pint of tobacco water has been added, for instance—is also effective. Before the plants dry after being dipped syringe them with clear water. Many of the advertised insecticides are sure remedies for thrips.

Woodlice are often a terrible nuisance, and one of the best of the several arrangements for trapping them is to place pieces of cold boiled Potato in small pots and loosely fill them with dry hay (Fig. 12). Lay these about where the woodlice are troublesome and large numbers will collect in them. Turn the contents out of the pots every day and empty the insects into hot water to destroy them. Another method is to place a little Phosphorus paste in the places frequented by them: they are attracted by this and become poisoned.

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